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Key attributes for successful leadership in construction: project managers and superintendents

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Key attributes for successful leadership in construction: project managers and superintendents

by

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ABSTRACT

The thesis is a summary of surveys completed at annual construction seminars hosted by the Master Builders of Iowa, Inc. by project managers and superintendents. Seven different surveys are listed regarding the preferences of each group (superintendents and managers). Surveys were conducted on the following subjects:

- Qualities necessary for the construction industry to remain strong
- Attributes a construction company needs to grow and prosper.
- Attributes an ideal superintendent needs to successfully lead a project.
- Attributes an ideal project manager needs to successfully lead a project.
- Attributes for the leader/manager balance required of a project manager.
- Attributes for the leader/manager balance required of a superintendent.
- Items that motivate a worker.

Responses were ranked, scored, and statistically tested to attempt to observe similarities and differences between project managers and superintendents. Data indicated that project managers and superintendents agreed about more issues than they disagreed. Additionally, they felt that communication, education, and training were essential characteristics.

CHAPTER 1: INTRODUCTION

1.1 Background

Construction is a widely diverse industry brimming with innovation and change. A vital portion of our economy it is said to produce $3.60 of economic impact for every $1 spent (Clough and Sears, 1994). Its importance and impact is substantial and critically important to our economic viability. Due to a rapidly changing project load, workforce, and corporate structure the modern construction entity has experienced dramatic changes over the past several decades. There has been a wealth of research and analysis attempting to integrate different technologies into construction. Specific focus has been in applying technological innovation to aid the estimation and management of projects. In an attempt to utilize these technologies we have largely failed to properly address one of the most critical aspects of our industry. Project management and effective leadership continue to impact the success or failure of a project. (Murphy, Baker, Fisher, 1974) As any project's success is generally defined on the basis of time, cost, or quality performance we cannot diminish the impact of key individuals on the project's ultimate success or failure. Identifying key personnel characteristics and attributes serving to enhance or detract from the likelihood of construction project success or failure is a subject in which little formal research has been completed. Additionally, very little research has been completed with regard to the impact construction project manager's and superintendents differential leadership styles will have on construction project success.

For many construction projects the labor on the job has the largest impact on a project's success or failure. Assuming that a project is properly estimated, manpower, productivity, and coordination are critical factors that contribute to bottom line profitability. This thesis generally defines project success as superior project performance with regard to the qualities of time, quality, and cost. All three of those qualities are subject to varying interpretations of satisfactions depending on if it is the client, project manager/team, or the contractor (Ashley, Lurie, Jaselskis, 1987). If properly estimated and ignoring change orders, materials and equipment are static constants on a construction project. Labor performance is solely based on productivity. The ability of the superintendent and/or project manager to properly motivate and direct the craftsman will determine the success of the labor on the job. This aspect of the project is the primary responsibility of the project manager and project superintendent. Additionally, these two individuals are responsible for overseeing the construction of the entire project. More than anything else, the success of the project hinges on the performance and capabilities of these two key individuals. The relationship these two develop between themselves, clients, subcontractors, and suppliers largely affects the overall perception and reality of the project's success and/or failure. Also, being "the face" of the contractor, future working relationships with the owner are at stake. It is absolutely critical to identify personnel who are technically proficient, excellent communicators, effective managers, and good leaders. In completing projects there are certain intangible characteristics that would be considered desirable (Baker, Murphy, Fisher, 1974). Among those would be the leadership and management skills possessed by every

superintendent and project manager. While these requisite skills are not easily quantified, to a large degree these intangible assets determine the success or failure of a project. Project administration, whether by the project manager or superintendent, is not only the delegation of tasks, but it is also motivating those engaged in tasks to perform at the highest level possible.

If the project manager and superintendent lack the ability to effectively administer the intricacies associated with the project all elements will suffer. Quality is directly related to oversight and attention to detail, profit is directly related to productivity and cost control, timeliness is again directly related to oversight and anticipation. Without the proper attention and key personnel details get missed, customer satisfaction suffers, and ultimately corporate profitability is lessened.

Accordingly, this thesis has endeavored to address the differing responses and perspectives in project managers and superintendents relating to the following areas:

- Qualities necessary for construction to remain a leading industry
- Attributes an ideal company needs to prosper and grow in the construction industry.
- Attributes an ideal project manager needs within a company to successfully lead a project.
- Attributes an ideal superintendent needs within a company to successfully lead a project.
- Attributes of most importance required for the leader/manager balance in a project manager

- Attributes of most importance required for the leader/manager balance in a superintendent.
- Effective motivator rankings

It is thought that project managers will have a combination of similar and differing perspectives related to these questions. The idea is to provide a broad spectrum of responses from which conclusions can be identified. Identifying and better understanding what these similarities and differences are and how they impact each other will serve to better facilitate the relationship between the two parties and contribute to construction project success.

At the cessation of this thesis it is hoped that there will be attained a better and more thorough understanding of the similarities and differences in leadership, management, and corporate motivators from project managers and superintendent's perspectives. It is hoped that a better understanding of these similarities and differences will contribute to a better possibility of construction project success.

1.2 Problem Statement

Construction projects have specified objectives. Typically those objectives relate to meeting or exceeding project expectations relating to time, cost, and quality. Critical in meeting or exceeding project expectations are the managerial personnel assigned to the project. Most construction projects have a project manager (PM) and a project superintendent. The dialogue and communication between these two key project personnel will, to a large degree, dictate the direction in which the project will proceed and what objectives will be of more importance to the client. PM's and superintendents who are actively communicating and not only

solving, but anticipating, problems more effectively bring a project in on time, on schedule, and of superior quality. As the primary conduit for communication from the client to all project partners both the PM and superintendent need to consistently communicate, resolve, and anticipate issues that arise during the construction process. The failure to do so will result in a project of inferior status.

Project success or failure is also contingent upon effective leadership by both the project manager and superintendent. Due to the itinerant and transient nature of the construction process, as well as the hierarchical structure, the leadership styles of the project manger and superintendent can and often are dramatically different. It is important that both of these individuals understand and effectively implement their various talents and skills in an appropriate manner. It is observed that there has been very little research completed with regard to PM and superintendent's desired attributes within themselves, within each other, and toward their corporate environment. A better understanding of central leadership skills required of project managers and superintendents would benefit education training and development programs in the construction industry. The research objective described in the following section is intended to address this deficiency.

1.3 Research Objectives

The primary objective of this research is to analyze and observe survey responses from project managers and superintendents attending the Master Builder's of Iowa "Cycle of Success" Academy from 2003, 2004, & 2005. The objective of this thesis research is to identify universal leadership characteristics that contribute to success in project managers and superintendents from their own

unique perspectives. Analyzing such responses will yield results demonstrating key attributes in project managers and project superintendents. Utilizing survey and statistical techniques a general picture should emerge of the similarities and differences associated with project managers and superintendents with regard to their perceptions about themselves, each other, and their corporate environment. Accordingly this paper has established the following objectives:

- Determine if leadership attributes in project managers are more relationship than task oriented.
- Determine if leadership attributes in project managers are more task than relationship oriented.
- Better understand similarities and differences in desired corporate and industry attributes desired by project managers and superintendents.
- Better understand similarities and differences in leader and manager attributes desired by project managers and superintendents.

1.4 Hypothesis

The author anticipates that the differential nature of leadership required in project managers and superintendents will contribute to alternating similar and different perspectives with regard to key attributes desirable in themselves, each other, and their corporate environment. While commonality will exist in the nature of responses, the order and importance level, will vary depending on whether the group is construction project managers or construction superintendents. Understanding and communicating these similarities and differences to each other will further enhance the construction process and significantly contribute towards project

success. It is also anticipated that this data can be developed into a blueprint for further study and observation.

Hypothesis #1: Leadership attributes for project managers will be more relationship oriented than task oriented.

Hypothesis #2: Leadership attributes for superintendents will be more task oriented than relationship oriented.

Hypothesis #3: Attitudes regarding corporate and industry attributes will be different between project managers and superintendents.

Hypothesis #4: Attitudes regarding desired attributes and characteristics in project managers and superintendents will be different between project managers and superintendents.

1.5 Thesis organization

Chapter 1 provides an introduction to the material and the perceived need for study and research in this area. Additionally the forum in which data was collected is introduced along with the research objectives, problem statement, and hypothesis.

Chapter 2 presents a literature review outlining researched data from which the hypothesis was derived and analysis was conducted.

Chapter 3 outlines the methodology that was implemented to obtain data. Additionally, the data collection process is introduced with a review of the forum in which data was obtained. Additional detail is provided with regard to the statistical methods that will be applied to the test data to determine statistical significance.

Chapter 4 describes the results that were obtained from the data collection process. Three categories are presented including 3 year average rankings, 3 year average scores, and annual rankings. In addition to these categories significance tables are presented based on Spearman's and Pearson's correlation coefficients to determine statistical significance.

Chapter 5 deals with a discussion of the results section and an analysis of the data that was collected.

Chapter 6 concludes this thesis and presents conclusions from the test data and recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Leadership defined

What is leadership and why is it important? Of what value is adequately addressing and identifying attributes associated with successful project leadership? Fundamentally, there is universal consensus that leadership, be it good or bad has a significant impact on the overall success or failure of an endeavor. With this being said there is a level of disagreement over just how significant that impact may be. A general definition of leadership would be the ability to influence people or groups. (Maxwell, 1993) There are vastly differing opinions on the nature and scope of this influence, but implicit to the above general definition includes the following assumptions:

- **There must be a group to have leadership.**
- **Leadership directs the group to some destination or goal.**
- **Leadership lends itself to a hierarchy of importance.**

How significant is leadership to an endeavor's success or failure? Arguments exist that leadership is a key determinant in success or failure, and arguments exist that leadership is one minor of many major factors that determine success or failure. Some have perspectives stating that economic, environmental, social and industrial conditions have a much greater impact on the organizations success or failure. (Nahavandi, 2003) Previous research indicating leadership's lack of impact has stated that the actual measurable, objective impacts of leadership are non-existent. (Meindl and Ehrlick, 1987) In general the majority of modern analysis of management includes leadership as an essential skill. Irrespective of objections it is

impossible not to recognize the perception that leadership has across the globe as important and key to the success or failure of an operation. Leadership is a global and American cultural phenomenon that is firmly entrenched and celebrated daily. From the founding fathers to modern musicians, leadership is widely acknowledged to set vision, trends, goals and influence in every facet of our culture (Collins, 2001). Likewise that universal acknowledgement of leadership is echoed by modern construction project management literature. Leadership is considered to impart key direction to a construction project's success or failure (Diekmann and Thrush, 1986).

Words such as leader, manager, and attribute will be utilized throughout this report. For reference see some concise definitions of those and other terms below.

Lead - "to direct on a course or in a direction." (Merriam Webster Online Dictionary)

Manage – "to handle or direct with a degree of skill." (Merriam-Webster Online Dictionary)

Project Manager – One who handles or directs with a degree of skill in planned undertaking. (Merriam-Webster Online Dictionary)

Superintendent – "One who has executive oversight and charge". (Merriam Webster Online Dictionary)

Attribute – "an inherent characteristic." (Merriam Webster Online Dictionary)

With the exception of attribute, the definition within the construction industry of lead, manage, Project Manager, and Superintendent is largely a matter of interpretation. Afsanah Nahavandi in his book The Art and Science of Leadership presents the following table on the differences between leaders and managers.

Leaders	Managers
Focus on the future	Focus on the present
Create change	Maintain status quo and stability
Create a culture based on shared values	Implement policies and procedures
Establish an emotional link with followers	Remain aloof to maintain objectivity
Use personal power	Use position power

Table 2.1 Differences in leaders and managers (Nahavandi, 2003)

Organizations assign job titles with little regard for uniformity. Accordingly, we have attempted to reduce the terms leader and manager to their fundamental nature. We see that the dictionary definitions place an interesting emphasis on the superintendent's specific knowledge of a task. The definition itself seems to acknowledge that the superintendent usually has the most comprehensive knowledge of the events and engagement of entities within the project. The definition of project manager, while still exhibiting skill and knowledge, is much less job specific. Both project managers and superintendents are used in different industries to describe positions within organizations. We must ask ourselves how the construction industry *generally* separates these important roles. As we further identify and describe the role of each it's believed that our research can provide some interesting similarities and differences.

2.2 Skills in leadership

A construction project requires management and the effective manager exhibits good leadership. (Gharehbaghi and McManus, 2003) At a managerial level (project manager and superintendent) individuals are engaged in influencing various

project entities to perform specified project tasks. The manager's ability to influence the speed, quality, and cost of these items places the project's success or failure squarely on their leadership skills. Construction manager's must have the ability to "lead the team within a relatively unstructured environment…integrate individual demands, requirements, and limitations into decisions that will affect overall project performance." (Odusami, 2000)

On a construction project the manager's skill set varies widely. Many times the terms leader and manager are used interchangeably. For the purposes of this thesis we have defined leadership as the ability to influence people. The relationship between management and leadership must be analyzed. It is important to note that management and leadership are both important facets of a construction project. This paper could broadly define the project manager and superintendent's position as managerial. Within that managerial position leadership is a necessary and essential skill. (Odusami, 2000; Gharehbaghi and McManus, 2003)

There are many different skills that go into managing a project that are distinct from leadership. Katz (1974) found three skill sets that were fundamental to administration; technical skill, human skill, and conceptual skill. Technical skill is important in the majority of positions in the world. A specified task is being performed (such as sawing logs) and the proficiency of the subject in completing that task affords his skill level. A lumberjack's technical skill would depend on the speed and proficiency with which he could saw logs. It is a highly structured, repetitive process that requires knowledge of tools and the subject (a tree) with little external interaction.

Likewise on a construction project there are various entities that are required for their technical skill. The installation of masonry or a boiler requires knowledge and skills in a highly repetitive task that is essentially specific to the nature of the task. Human skill would address the leadership skills of the manager and speaks to his ability to influence direction and effort. The foreman or superintendent of a crew of lumberjack's articulates that an entire forest must be cut down before the end of the week. He directs four crews of two lumberjacks to start at each ends of the forest and work inward until they meet in the middle. The superintendent's ability to clearly see the broad picture of what is trying to be accomplished (cutting down a forest) and optimizing the manner in which it is done demonstrates both his human and conceptual skill. The composition and configuration of the teams that are put together relates to his ability to effectively lead and motivate the individuals involved in the process. Within these broad managerial categories it is the human and conceptual skills to which leadership applies. Management can be broadly applied to the nature of a construction project manager or superintendent's position, but leadership is a skill requisite to successful management. (Chan and Tse, 2003)

With the above discussion several important factors emerge:

- Leadership is defined as influencing people.
- Leadership is a skill in a manager.
- Leadership is of significance to a project's success or failure.

Understanding the above central tenants the need is established to better understand the criteria by which leadership is further defined, modeled, and applied to the construction management process.

2.3 Leadership Theory

Leadership theory has developed dramatically over the past 200 years. Early investigation into leadership operated on the general assumption that leaders are born with innate characteristics. Early research, spurred by the industrial revolution and the emergence of organizational models, focused on identifying what characteristics leaders had in common. After decades of research findings indicated no clear consensus with regard to intrinsic traits that leaders are born with. At the aforementioned point in history birth order and social standing played a significant role in the opportunities afforded individuals. Individuals were placed in positions of responsibility irrespective of context and background (Bass, 1981) While some excelled at their respective positions many were miserable failures. After lengthy studies it was found that "Some traits do emerge as important…leaders are more sociable, more aggressive, and more lively than other group members. In addition, leaders generally seem to be original, popular, and have a sense of humor." (Nahavandi, 2003) The lack of consistency in the application of these traits to specific situational leadership has led to a general abandonment of the central premise that leaders are born not made. The above traits may be commonalities observed in leaders, but the presence of these traits in an individual does not ensure that this person will necessarily rise to a position of leadership.

After the above periods of research leadership research began to focus on leadership behaviors. In 1939 Kurt Lewin and a group of researchers began researching and developed the groundwork for behavioral leadership theory. His

studies in the late 1930's developed the democratic, autocratic, and laissez faire leadership behaviors. The Ohio State Leadership Studies accomplished groundbreaking research in establishing leadership behaviors. Researchers developed a comprehensive list of 2,000 behaviors (Nahavandi, 2003). This list was used as a basis for the development of the Leadership Behavior Development Questionnaire which continues to be utilized for leadership analysis. The questionnaire is primarily aimed at assessing relational or task leadership. While the questionnaire does identify traits particular to relational and task leadership, behavioral models struggle to correlate behaviors with situational effectiveness. The mere presence of certain behaviors, similar to traits, does not guarantee that effective leadership will result.

Researchers continued to observe a need to find some correlation between leadership effectiveness and situational impact. Identifying specific behaviors does nothing to assess the relative need of those behaviors specific to certain situations. Accordingly, researchers began to search for methods that would match situations with leadership effectiveness. Correlating effectiveness with certain situations led to contingency models being developed.

2.4 Contingency theory

In the early 1960's Fred Fiedler developed his contingency model for leadership and other theories followed suit. Contingency theory continues to dominate existing theory and practice as leadership training. "The primary assumption of the contingency view is that the personality, style, or behavior of effective leaders depends on the requirements of the situation in which the leaders find themselves"

(Nahavandi, 2003). According to this definition it is important to note that the personality, style, and behavior of an effective leader must be matched to the personality, style and behavior necessitated by the situation. Fiedler created a contingency model that was based on the Least Preferred Coworker (LPC) test. This test primarily indicates the manner in which an employee will respond to their "least preferred coworker" given situational failure. This LPC score is then an indicator of the person's task or relational motivation (Fiedler, 1967). Fiedler goes on to explain that three factors impact a leadership situation. They consist of the relationship of the leader with the group, the structure of the task performed, and the positional authority the leader has in a given situation. All of these elements combine to dictate the impact that the leader can have in a certain situation.

Dimensions:	3 Situations							
Sit Con (Situation Control)	High Sit Con Situation			Moderate Sit Con Situation			Low Sit Con Situation	
LMR – Leader-member relations	Good			Good	Poor		Poor	
TS – Task structure	High		Low	Low	High		Low	
PP – Position power	High	Low	High	Low	High	Low	High	Low
Situations	I	II	III	IV	V	VI	VII	VIII

Predictions	**TASK MOTIVATED BEHAVIOR** LEADER IS BEST FIT TO SITUATION I, II & III	RELATIONSHIP MOTIVATED BEHAVIOR LEADER IS BEST FIT TO SITUATION IV, V & VI	TASK MOTIVATED BEHAVIOR LEADER IS BEST FIT TO SITUATION VII & VIII

Figure 2.1 Feidler's Contingency Model (Boje, 2006)

Figure 2.1 indicates the three levels of Fiedler's model as well as task vs relationship motivation. The figure indicates situations requiring high and low levels of control are best suited for task motivated behaviors. Situations that involve moderate levels of control are best suited for relationship motivated leaders. The figure also does a good job of indicating the various interactions of leadership styles with the three key factors. Notice that both task and relationship leaders can operate in good and poor leader/member relations, as well as in high/low situations of task structure and positional power.

2.5 Situational effectiveness

In situations involving high situational control the task motivated leader thrives. Their attention to detail and desire for a highly structured environment allows them to operate effectively. The relationship motivated leader feels stifled by such an environment. The defined nature of the process and existing seamless integration make them feel useless and ineffective. They will naturally look for avenues in which they can establish a connection with parties inside the process and run a strong possibility of upsetting the established status quo. The relationship motivated

leader does do well in situations involving moderate levels of control. The task is very broadly defined, but there are still significant variables that can interrupt the ultimate destination. Additionally, the task motivated leader excels in low situational, disaster type settings. Where the leader has no time or impetus to develop a relationship with the followers and the directives must be clear and fast and task oriented leader will excel. Figure 2.2 illustrates graphically the relationship between LPC and group effectiveness. There are several types of situations that lend themselves to each of these leadership types. Typically blue collar workers prefer task oriented leaders. As the function they are performing is generally highly defined, with little variation an individual who operates well in this highly structured environment is preferable to a relationship oriented individual. Likewise a task oriented leader would operate well in a hurricane recovery effort. The individuals will interact with each other in very limited ways and the direction must be clear and unequivocal. Situations involving moderate levels of control with low positional power and an unstructured task are generally better led by relationship motivated leaders. An example would include a producer at a recording studio. Working with musicians who have a high opinion of themselves and there skills to bring together a song that is not clearly defined requires the ability to juggle the requirements of the task, producing a song, with the various desires and interactions of the participants. The musician may want to sing in a different key, the instrumentalist may want to vary a line, and the recording technician's equipment may not be working properly. The producer must juggle and lead all of these people to somehow finish the song (Fiedler, 1967).

The leadership style of the individual is defined using the "least preferred coworker" scale. This scale asks an individual to analyze all the individuals that they have ever worked with. They must then identify the coworker that they least preferred of all that they had worked with. Upon identifying that coworker a series of questions are administered to understand what in particular about that person was distasteful to the individual. The questions have scored responses that will provide a picture of the least preferred coworker. If this score is high, the respondent generally had a good relationship with the offending worker. The respondent will respond positively regarding the individual. This person is relationally motivated. If the score is low, the respondent will respond vindictively against the offending individual and will portray them in a negative light.

Regardless of the dynamics of the situation or the offending worker the only item of any interest in the LPC method is the respondent's reaction to this coworker. That response will either be a high or low LPC indicating the leadership style of the respondent. A low LPC indicates a task oriented leader and a high LPC indicates a relationship oriented leader. These leaders effectiveness depends largely on the situation in question and whether or not their leadership style is effectively matched (Fiedler, Chemers, and Mahar, 1974)

Fiedler states that leadership styles do not change. An individual will have programmed responses that will not vary over time given a consistent situation. Once a task motivated leader, always a task motivated leader. Once a relationship motivated leader, always a relationship motivated leader. The individual or

organization must take the situation and manipulate it to fit their particular style of leadership (Fiedler and Chemers, 1974).

Of Fiedler's research there is universal agreement that situational contingencies exist. Objections are raised primarily around the LPC test and its lack of flexibility in describing leadership attributes. Many have problems with centering on the "least preferred coworker" as the sole descriptor of leadership type. Criticism has also centered on the lack of flexibility of the leader. There are many who feel that a leader can and does change over a period of time.

Irrespective of minor objections Feidler's contingency model has been empirically proven to demonstrate that the "leader match" process is applicable and correlated to leadership effectiveness and group productivity. Understanding that at its core leadership "...is about focusing people's talents, enthusiasm, and earnest intent to achieve common goals...The beauty of modern leadership, however, is that the path of serving others creates synergies that benefit everyone, including the leader, those the leader manages, upper management, company shareholders, and society" (Spatz, 1999). Spatz continues to argue that leadership effectiveness begins with self-assessment. That self-assessment leads to a better understanding and application of personal leadership traits to particular situations.

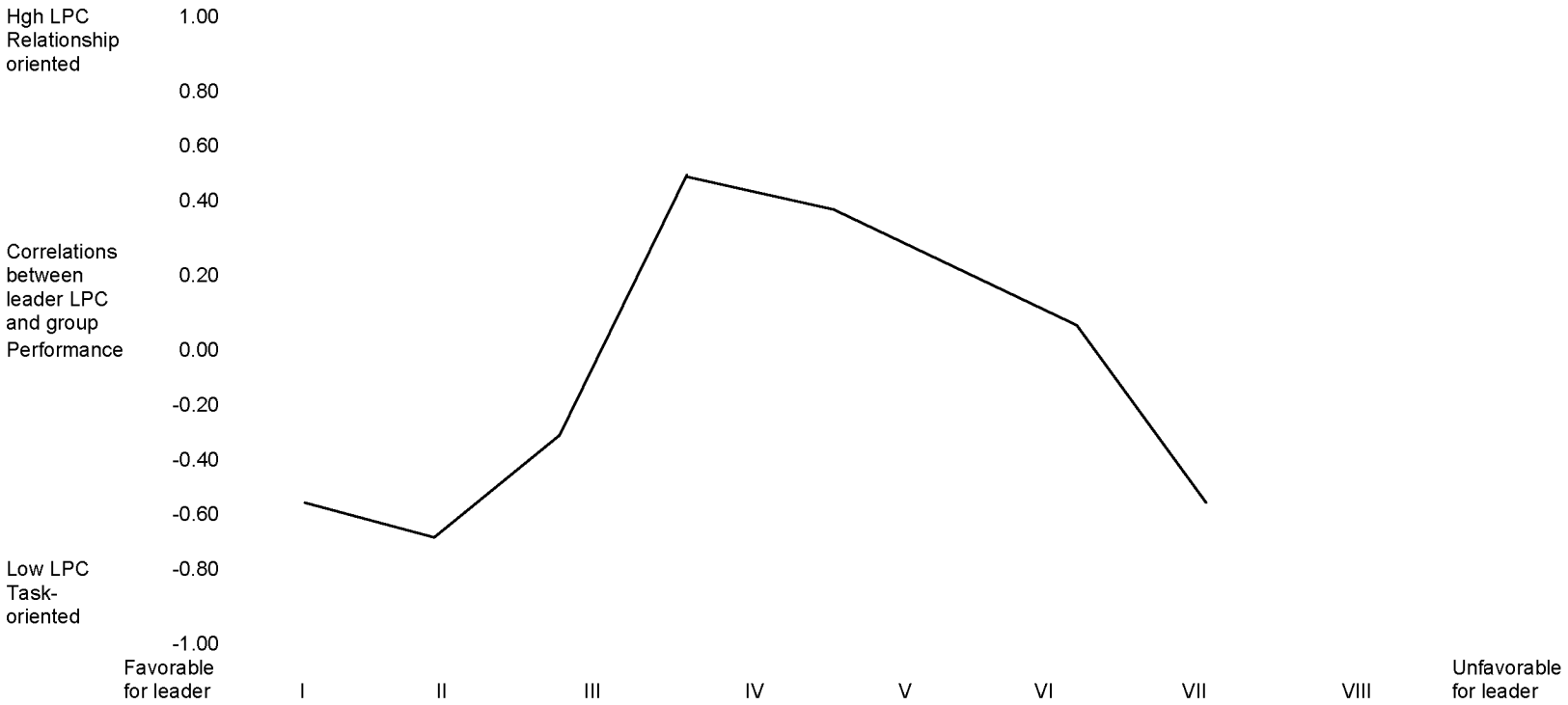


Figure 2.2 Correlations between leaders' LPC scores and group effectiveness (Fiedler, 1967)

2.6 Project managers and superintendents roles and responsibilities

Understanding Fiedler's contingency model as well as historic behavioral and innate leadership research provides an excellent basis for analyzing construction project managers and superintendents. Understanding the various roles and responsibilities of both of these individuals will aid in the analysis of their individual talents and unique perspectives.

Previous research regarding leadership in construction has centered on the managerial side of construction. Empirical research has been completed with regard to construction managers, but little data has been developed with regard to the interactions between superintendents and project managers. The manager and superintendent communicate and correspond on a daily basis and both manage different aspects of the project. There is a deafening volume of research directed at the leader attributes necessary to manage a construction project. The Project Management Institute has funded numerous studies inquiring into the interaction between leadership and project managers. Requirements for effective managerial leadership include communication, listening, decision making, and problem solving (Odusami, 2000). Additionally, experience will generally play an important role in the effectiveness of the leader. The length of tenure, as well as the number of roles fulfilled will further serve to indicate an effective leader (Skipper and Bell, 2006). Leadership development is a never ending process of self evaluation, training, and experiential learning. As construction managers are constantly requested to perform

a variety of different roles, in different situations, at different times, the ability to assimilate common experiences and apply them to alternative environments is vital to effective project leadership (Gharehbaghi and McManus, 2003). The manager's ability to adequately adapt to the environment and particular requirements of a situation are fundamental to effective leadership. When Skipper and Bell asked how top performing project manager's developed their skills sets responses centered on observation, self-study, reading and mentoring.

Utilizations of the construction project manager and superintendents vary widely depending on the component of the construction process he is employed in, as well as the contract type. Figure 2.3 demonstrates the typical hierarchy in the construction organization. The project manager is responsible for leading a team in the construction of a particular project or aspect of a project. Most construction projects have objectives relating to quality, cost, schedule, and performance (Bruce and Langdon, 2000). It is important for the manager to be leading the construction team toward the ultimate objective of project delivery. Identifying key time, cost, quality constraints will impact the overall perception of project performance. Project managers typically create schedules, budgets, pay requests, requests for information, request's for proposals, schedule updates, document distribution, and many other miscellaneous items related to project progress. The project manager documents and handles changes in the design. Depending on the nature of the contract they also can be integrally involved in design development. Typically seasoned project managers add a tremendous amount of experiential knowledge to

the design process. Generally, project managers have sole source responsibility for project delivery. They are ultimately empowered to make decisions over all aspects of the project. It is vitally important that the manager has the authority of executive management to fully make these decisions (Clough and Sears, 1994). Figure 2.3 illustrates a generic hierarchy in a construction organization. Additionally, it is important for the project manager to accurately identify problem areas before they begin and pro-actively lead the project forward as opposed to responding to problems. As the project manager interacts with the client they also are the face of the construction entity and provide key interaction related to the continuance or severance of the business relationship. Additionally, in such areas as design-build projects the manager ties the design and construction. It is important that the design-builder execute as the primary point of responsibility for the coordination and planning of the project. Ultimately many of the aspects related to the project's ultimate success or failure relate to the manager's ability to clearly convey project goals and necessities to various project entities such that the entire project is completed in the appropriate fashion. Accordingly, it is this conveyance and communication that dictates a manager's tendency towards relationship motivated leadership with moderate situational control. Project mangers generally understand that they have a broad goal in mind; the construction of something. What the project is and how to accomplish it is generally left up to them. The manner and processes that they employ are dramatically different depending on a variety of situation parameters. The manager must effectively assess the needs of the particular project at question and make sweeping decisions that provide directional guidelines.

This author uses the monikers construction engineer and project manager interchangeably. "The construction engineer represents the owner and is expected to secure good construction while enforcing contract provisions fairly. He also acts as liaison between the science of engineering and the art of construction management…the construction engineer has responsibility for the construction and temporary operation of new facilities, for extensive replacement and reconstruction, and sometimes for maintenance and repairs. Often these are scattered over a wide area and over many separate plants or installations. He assumes complete responsibility for seeing that construction work done by contractors…meets the standards of his organization and operates within budget limits…His work includes cooperation with the engineering department in designing the project; complete cooperation with the cost-accounting department in making broad policy decisions…; organizing company forces for their part of the work; advertising, securing bids, and letting contracts for the project; supervising execution of contracts by contractors or of work by company forces; making progress reports and monthly and final estimates; accepting the completed work for the owner; monumenting construction and perfecting construction records; …and repeating all this on current and subsequent projects" (Royer, 1974). Please notice the plural on the word projects. Depending on the size and corporate hierarchy it is there is a good possibility that the project manager will oversee several projects at one time. The project manager completes essential functions on the project; however, many of them are not visible to the worker at the jobsite to the craftworkers or the superintendent.

The superintendent will generally be physically stationed at the jobsite. He may be monitoring one to three projects depending on the size. He will have a job trailer from which he works and interacts daily with foreman and workers at the site. He will act as a conduit for information from those physically completing construction to the design team or project manager. The modern superintendent assumes responsibility for anything from jobsite safety to jobsite progress and scheduling. Often there will be very little interaction between the project manager and the superintendent who is in the field responsible with the project's daily activities. To the project manager this interaction is a relatively small portion of their responsibility. "..the project manager's contacts with the superintendent are not so important to him as to the superintendent" (Royer, 1974).

Additionally, the project superintendent centers on task related activities integral to project completion. Coordinating and ensuring proper completion of all tasks related to the construction of the facility. Generally, superintendents are involved in the project after the design has been completed. They ensure that the project is being constructed to the parameters set forth in the construction document and in accordance with regulatory codes (Mincks & Johnston, 2004).

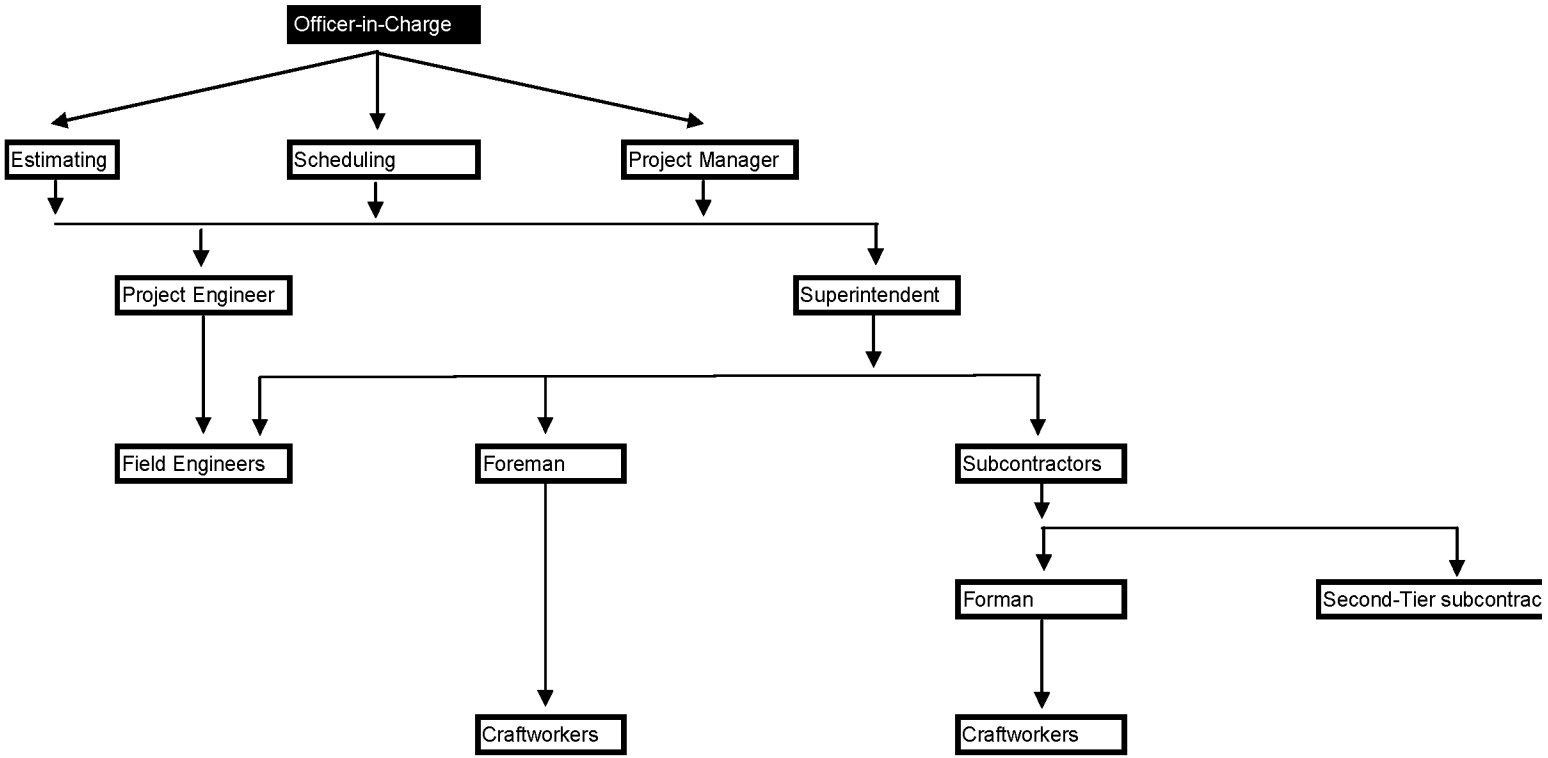


Figure 2.3 Typical construction organizational hierarchy (Mincks & Johnston, 2004)

Superintendents notify various entities of project requirements, verify safety procedures are being adhered to, resolve job conflicts, and clarify ambiguities. To a large extent he functions as a conduit between the project manager and the day to day construction activities. He functions as the general contractor's representative on the construction site (Cole, 1982). Additionally, there are many instances in which he will be in direct communication with architects or other owner's representatives as they monitor jobsite progress.

Superintendents direct equipment and material deliveries and coordinate the layout and placement of the site. They are generally responsible, in conjunction with the project manager, for the overall flow of the construction process as the project moves from phase to phase. The construction superintendent typically has risen through the trades and has a relatively clear grasp of the performance and construction of many of the aspects of the project. That technical comprehension and practical experience gives the superintendent a degree of latitude and "credibility" with the trades and field personnel. The superintendent is often the primary determinant of the cost, control, and timeliness with which a project is constructed (Mincks & Johnston, 2004). It is also universally agreed that domineering leadership, or leadership through intimidation and fear, has become a thing of the past (Bush, 1973). While authoritarian rule has long dominated construction leadership current management theories largely reflect the notion that directional imperatives are a thing of the past. It's much more effective to lead through encouragement, enthusiasm, integrity, and respect. Also, a superintendent

needs to have non-quantifiable skills such as motivation, leadership, decision-making, and organizational skills (Cook, 1987). Generally, the project hierarchy gives the project manager greater positional authority than the project superintendent, however, the functional importance that a superintendent yields cannot be under-estimated. "In practice, construction project authority is wielded much as a partnership effort, with the project manager and project superintendent functioning much as allied equals" (Clough and Sears, 1994).

In addition to managerial oversight the project superintendent can play an important role in the trade and craftworkers productivity and quality. The motivation required for this is largely an art that is learned over time. The superintendent can provide an excellent amount of direction and encouragement toward the composition of crews. Superintendents are usually working proactively to place competent personnel in a good working situation to enhance productivity (Cole, 1982).

2.7 Contingency theory applied

In light of the nature of responsibility for the superintendent their project role centers on the order and nature of the task's that are to be performed. The leadership role performed in the project process would clearly be defined as task motivated leadership. Accordingly, it would be anticipated that a project superintendent functioning best in situations involving alternatively high and low levels of control. Fiedler references the high levels of control exerted by a bridge superintendent. "An example of a high control situation would be that of the

construction superintendent who builds bridges. He has a great deal of control and influence in his situation because he can be reasonably certain that (a) his subordinates will willingly follow his instructions because he has their full support, (b) he can fire those who fail to do what they are told, and (c) he has a set of specifications and blueprints which tell him exactly how to proceed and what the final product should look like" (Feidler, Chemers, and Mahar, 1976).

Focusing on the interaction between project managers and superintendents the strategic planning is largely completed by the project manager. The day to day implementation is largely completed by the superintendent. Key to these statements is the underlying supposition that ***neither can exist without the other.*** Additionally, the interaction is complicated by the essential nature of the leadership attributes required to effectively administrate both positions.

2.8 Successful construction projects

Ultimately the aim of both positions is a successful construction project. There are many definitions of project success, but simply put every project's success hinges on each party having some consideration in the process. The client must feel they received an appropriate product for their expense and the contractor must feel they were adequately compensated for services rendered. When both sides can walk away mutually satisfied that both those objectives have been met the project was ultimately successful. Success may not be readily apparent and the ultimate project goals may take years to be manifested, but ultimate realization of satisfactory

consideration for services rendered or project delivery will lead to the eventual perception of success or failure. It is best to adopt a sufficiently broad definition of project success (Griffith, et cet., 1999). As opposed to a sporting event, success or failure in a construction project is often much less clear. Different parties usually end up with certain positives and negatives associated with the project although over time many of the process related objections (over-budget & over-schedule) will fade in light of the quality of the product. Near term project success largely hinges on the ability of the constructor to establish and communicate successful project objectives to the client. Many times project success also hinges on contract type. There are many generalities with regard to contract types, but we would loosely group them as design/bid/build or design/build. The contractual basis is established pre-design or post-design. Depending on the contract type the contractor may or may not be acting as an agent for the owner. This is described in general terms as the difference between a vendor relationship and an agency relationship. A vendor's objective is to provide minimal acceptable level's of service. A vendor's selection is largely based on price and his primary objective is to minimize services expended to meet a minimal level of service. An agent is charged with rendering services that are consistent with professional practice and that are in the owner's best interest (Kluenker, 1996).

Researchers have grouped project success factors into five categories. These include human-related factors, project-related factors, project procedures, project management actions, and external environment (Chan, et cet., 2004). Two

of the five categories relate to project managers and superintendents. Related to these five categorical determinants of project success are "critical success factors" that impact project performance. These success factors include personnel, communication, trouble-shooting, client acceptance, client consultation, planning effort, project team motivation, goal commitment, and technical capability (Griffith, et cet., 1999).

All of these critical success factors are significantly impacted and/or accomplished through the project manager or superintendent. Both of these individuals serve to function as a team in the previously mentioned alliance to complete a successful construction project.

The Academy and project managers and superintendents served as an opportunity to develop feedback and data from project managers and superintendents to address the leadership characteristics desirable in themselves, each other, and their respective companies.

CHAPTER 3: METHODOLOGY

3.1 History and background of the Academy

Master Builder's of Iowa along with the Construction Engineering Program at Iowa State University has developed a weeklong Academy for project managers and superintendents. This Academy, deemed "Cycle of Success," is a series of seminars and lectures on various subjects relating to construction. Each year during the first week of January as many as 60 project managers and superintendents from across the country gather for training in Ames, Iowa. Topics such as scheduling, preconstruction planning, financial analysis, marketing, & business development are developed and discussed by multiple lecturers from around the country. (Please see the attached Academy brochures in Appendix A.) The Academy is aimed at developing and enhancing the skills required by project managers and project superintendents for construction leadership. Emphasis is placed on dialogue and discussion, as well as lectures and presentations. A main focus of the Academy is leadership and character assessments, including six sessions specifically devoted to personality and character assessment. The purpose of the leadership sessions was to cover the following topics: The Project Manager – Superintendent Relationship; Transformation Model; Leadership Focus; Motivation; The Dynamics of Leadership; Leadership Qualities; Communicating as a Leader; Conflict Resolution; Leadership Strategy; and Coaching for Success. The Academy is an annual event at which all of the data for this thesis has been obtained. As stated in the "Objective" portion of the Academy's brochure, "The objective of the academies is to create an extensive, highly interactive learning experience to develop the skills of project

managers and project supervisors in the construction industry." This objective was clearly manifested in personality assessments and participatory interaction between the facilitator and the students. Emphasis was placed on the practicality and general applicability of conveyed information.

In the Academy, focus was placed on understanding and cultivating characteristics necessary to be a good leader, including time spent identifying personal characteristics and comparing them to qualities identified as essential to a good leader. The ultimate purpose of the leadership portion of the Academy is "to help individuals develop their own pattern for success..." Implicit in this statement is an acknowledgement that personal characteristics define and dictate the means and methods through which success is achieved. It is through self-discovery and analysis that success, being defined, can be replicated. The nature of the task is rooted in self-critique and analysis. The forum encouraged interaction and discourse. The leadership portion is aimed at identifying universal attributes that contribute to project success and translating them into personal characteristics. Focus is placed on honestly and appropriately defining your existing characteristics and how they relate and correspond to identified universal attributes. This can provide the managers and superintendents with critical information vital to enhancing leadership and managerial skill.

3.2 Method

The data for this report was compiled from leadership sessions with Dr. Cook at the 2003, 2004, and 2005 Academies. Project managers and superintendents were separated into groups for the Academy which then studied leadership;

sessions were held with 4-5 sub-groups consisting of approximately 5 members each. A portion of the class was devoted to specific instruction regarding leadership. Other portions of the time were devoted to data collection regarding the superintendents and project manager's attitudes and perceptions towards leadership characteristics.

Project managers and superintendents came from a wide range of backgrounds including general contractors, specialty subcontractors, construction managers, and facility managers. Typically the companies represented performed various facets of heavy highway or vertical building projects. Within the two groups individuals had managed varying in size from $1,000 to in excess of $10,000,000.

Each sub-group was given time to contemplate a series of questions regarding qualities, attributes, and motivators in construction. The sub-groups were provided with large sheets of white paper and markers. Each group was then instructed to develop a list of attributes or characteristics that would best describe their perspective toward certain questions regarding important leadership characteristics. As subgroups developed a list of responses they were written on large white sheets of paper and presented to the groups.

Once all subgroups had posted their responses, individual surveys were handed out to each individual. These surveys were completed by each individual in the academy and collected for data processing. As mentioned previously, project managers were in one group and superintendents were in another. In an attempt to produce not only a picture of what was important, but also what was critical as opposed to nominal, individuals were instructed to list survey responses in order

from "most critical" to "least critical." For most surveys seven responses were requested. Therefore the most weight any single response could receive would be seven points, with one point representing the lowest weight. Please see Figure 4.1 "Flowchart for data collection for visual description." The only survey that was not completed in the fashion was the seventh and final survey that detailed the "Effective Motivator Ranking." There were ten predetermined responses that were ranked by survey respondents.

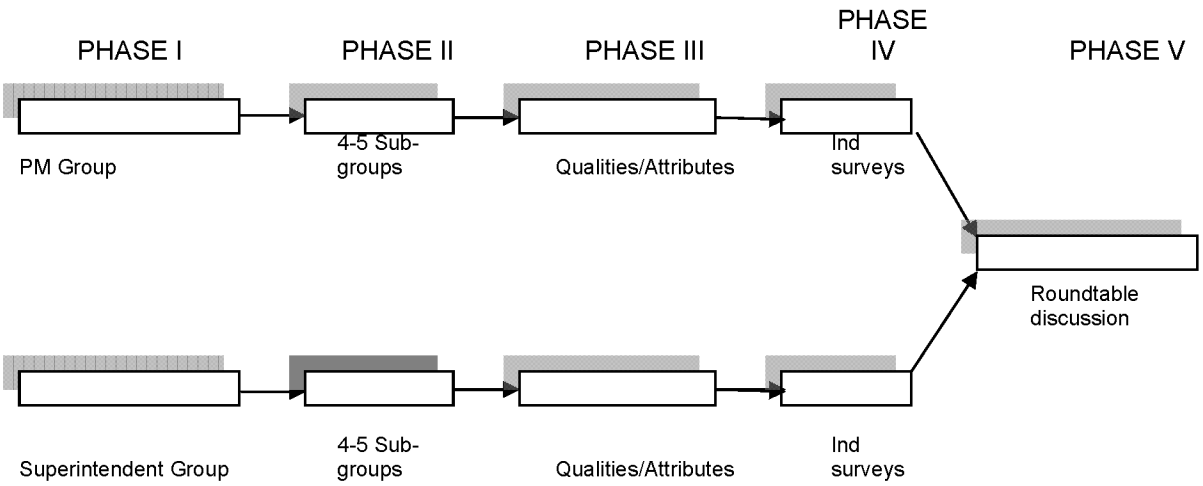


Figure 4.1 Flowchart for data collection

It's important to note that the entire process was approached as an open discussion with the opportunity for feedback. Dialogue between students and the facilitator ensured accurate responses and an understanding of the questionnaires. Some of the surveys could be considered quite broad in scope, however, the dialogue served to adequately explain ambiguities. Eliminating ambiguities served to provide us with a group that understood quite clearly the aim and focus of these

surveys. Interpretive difficulties were discussed during subgroup response presentation time. This is important to note as we can concretely define the scope of specific responses only if general definitions were clearly outlined. Subjective responses can cause misinterpretations. The potential for personal bias cannot be ignored in a setting such as this. The research team felt however that the nature of collection facilitated and stimulated thought and dialogue that may have not been present if individuals were asked to present attributes. Explanation will follow along with the results in the following "Analysis" section.

Several responses of a similar nature were combined to create clusters of characteristics. For example in a list of qualities necessary to keep the construction industry a leading industry "licensing" and "testing" were given as responses. To reduce these into more general descriptions they were both grouped under the heading "education." Individual responses were not weighted and tabulated because emphasis would be lost within the general topic. Clustering responses allowed the research team to identify the importance of topics such as the general assertion that "education" is needed to keep the construction industry a leading industry. In other words, separate discussion on the topic of education as a promoter of the construction industry can digress into specific methods of how. (i.e. licensing or testing), which are not of primary interest in the research study.

The different survey responses were given weights according to their order in the survey. For all surveys the respondents were instructed to list their responses in order from most to least important. Accordingly the first response would be given 7 points. Likewise the final response would be given 1 point. When all responses

were tabulated totals were added up for common responses. The tabulated data is presented for the 2003, 2004, & 2005 Academy's in Chapter 3.

After data was tabulated it was then analyzed on an annual basis for uniformity in responses. As the two populations (PM's and superintendents) did not have set responses from which to choose there existed some degree of dissimilarity in responses. This was prevalent from year to year much more so than on an annual basis. Utilizing the similarities in annual responses rank orders were established for responses and relative ranks of the responses between superintendents and project managers.

Due to substantial differences in the rank of responses between the groups Spearman's rank order correlation was applied to test significance in the uniformity or differences of the opinions of project managers and superintendents with relation to the survey questions.

Spearman's rank order correlation is a non-parametric statistical model that bases its model structure and parameters upon data collection. The correlation assesses how well non-parametric monotonic functions can describe the relationship between two variables. In this case our two variables project managers and superintendents. The rankings of responses to survey are compared between the two groups to test positive correlation, negative correlation, or independence. Our tested null hypothesis is that project managers and superintendents have similar perspectives with regard to attributes and motivators relative to each survey administered. A positive correlation would result in an acceptance of this null hypothesis. A negative correlation would result in a rejection of the null hypothesis.

Rank correlation relies on no normality assumptions and is not necessarily based on data measurements (Hinkle, et cet. 2003). As in the case of our data scores were converted to ranks and scores were disregarded. As the validity of measured scores holds no significance with differing populations correlating scores is of no relevance. Population sizes for project managers and superintendents differed over three years thus ordinal scales are of greater use. Raw scores are converted to ranks and differences between ranks are tested with the following equation:

$$\rho = \frac{\sum (d^2)}{n(n-1)}$$

Where:

d= the difference between the ranks of corresponding values of X and Y, and

n= the number of pairs of values.

The rank-correlation coefficient will have values between -1 and 1 indicating a positive, negative, or neutral relationship. A coefficient with a value of -1 would indicate that ranks are in exactly the opposite orders and the two populations are in disagreement. A coefficient with a value of 1 would indicate that ranks are in exactly the same orders and the two populations are in agreement. As our response sample sizes vary from survey to survey and year to year there will be different correlation values according to sample sizes. Spearman rank-correlation coefficient's are as listed below:

n	*0.05*	*0.02*	*0.01*
5	**1**	**1**	
6	**0.886**	**0.943**	**1**
7	**0.786**	**0.893**	**0.929**

8	**0.738**	**0.833**	**0.881**
9	**0.683**	**0.783**	**0.833**
10	**0.648**	**0.746**	**0.794**
12	**0.591**	**0.712**	**0.777**
14	**0.544**	**0.645**	**0.715**
16	**0.506**	**0.601**	**0.665**
18	**0.475**	**0.564**	**0.625**
20	**0.45**	**0.534**	**0.591**
22	**0.428**	**0.508**	**0.562**
24	**0.409**	**0.485**	**0.537**
26	**0.392**	**0.465**	**0.515**
28	**0.377**	**0.448**	**0.496**
30	**0.364**	**0.432**	**0.478**

Table 4.1 Critical values for a two-sided Spearman rank-correlation coefficient (rs) (Hole, 2006)

The confidence interval utilized for testing will be .05. SPSS software was utilized for data analysis. The program is a statistical and data management software package for researchers.

As the table indicates sample sizes can range from small to large. Initial significance tests were attempted across all three years of data collection. Over the three years 4-5 responses were found to be consistent. This yielded a relatively small sample size from which to test significance. These responses and relative Spearman rho values are presented in Table 50. Additionally, p-values were calculated to test the significance of the correlation coefficient.

Due to the relatively small response populations from which test were derived for the averaged survey's Pearson's product moment correlation was also applied to

the scores of the averaged data for comparison. The calculation for Pearson's product moment correlation is as follows:

$$\rho = \frac{\sum Z_X \times Z_Y}{(n-1)}$$

Where:

ρ = Pearson correlation

Z_X = Variable X

Z_Y = Variable Y

n = population size

CHAPTER 4: RESULTS & ANALYSIS

4.1 Qualities for the construction industry to remain a leading industry

4.1.1 Responses and trends

The first survey instructed participants to, "…list the qualities necessary for the construction industry to remain a leading industry." A partial list of responses is provided below:

Education	Public Relations	Compensate "best" people
Recruit	Research/Development	Diversity
Goal Setting	Technology	Mentoring
Service	Productivity	Integration of service

While many of the responses varied dramatically the nuances within individual categories is particularly interesting. Observing a team of groups discussing education was informative. To the project manager, most of whom were college educated, education immediately brings to mind an investment in additional class work perhaps in estimating or computer scheduling. Education is envisioned as continuing education while in the workforce, but for the college graduates much of what they need to learn in their careers could fall under the category of experience and/or professional development. To the superintendent who typically has little or no higher education, the idea of education brings to mind short courses involving specific skill, such as computer literacy or cost/data tracking, and potentially something as basic as email training or typing. For project managers the important issue to note is that education is much more of continuation, looking forward rather

than back. Paradigms shift depending largely on the type of individual and worker being analyzed. It's important to note these differences.

It is also interesting to see the variability of responses over annual conferences. While each year has responses that are generally similar (some more so than others) each population has unique items. This could reflect personal differences within years and varying importance levels of different items. It's also critical that each year began with no set list of responses. Each year's responses were generated internally and could account for some of the differences.

It is clear over all 3 years that general subjects such as education, marketing, technology, and compensation repeatedly appear. As noted above education is illustrated in multiple responses including: educate owners, educate youth, educate public, and the general category of education. Marketing also has some interesting responses including: better P.R., marketing, relationships, and image.

4.1.2 Observational study

We can notice a significant degree of consistency between the two groups. It is important to remember that the superintendents and project managers were separated during all of these surveys. Attributes generated by one group may reflect attributes generated by another, but it there are subtleties in each. For example in the 2004 survey we see that project managers listed Education as 69 points above technology. Project Manager listed such items as licensing, periodic testing, and continuing education as their focuses in this category. Superintendents listed education as their top priorities for the industry. "Educate public of opportunity" could potentially be coupled with education to provide a similar disparity in ranking.

Superintendents clearly felt that the general public was largely misinformed about the compensation, nature, and environment they worked in. They felt there exists somewhat of a stigma towards the construction industry. Public Education seemed to be an excellent method of improving perception. It is also interesting to note the "opportunity to advance" attribute. Many superintendents have assumed their position by rising from craftsmen to foremen to superintendent. They felt this background important to the industry's strength.

With these notations it's very clear from all years that a combination of education in all facets is very important to both project managers and superintendents to construction remaining a leading industry. As mentioned above, responses reiterated this importance with regard to education, educating the public, and educating youth with regard to the potential of opportunity in the construction industry. Image, public relations, relationships, and marketing were cited across all 3 years as important to keeping construction a leading industry. Pay, income, and compensation was cited in 4 out 6 surveys. Several responses centered on the innovation and technology needs in construction, as well as the workplace and workplace environment. Safety was also noted as a necessary quality, but was generally placed lower on the list. Comments could also be made on the importance of the construction industry to remain loyal and provide opportunities for employees.

From the survey's administered it is very clear that across multiple years and groups both project managers and superintendents clearly felt that education and public relations were key to keeping construction a leading industry.

4.1.3 Significance testing

From the significance testing it appears that the rank orders for the 1st survey, qualities necessary for construction to remain a leading industry, were generally similar, but not with a conclusive amount of significance. A correlation coefficient of .8 indicates that there is general agreement between the two populations, but not at a statistically significant level.

Likewise looking at the 3 year average scores yields a Pearson correlation of .418 which is also insignificant. Accordingly, it can be concluded that there is general agreement between the two populations that the ranked qualities are important to both groups with general agreement.

2004 yielded an annual survey that could be tested with Spearman's coefficient. Like the 3 year averages this survey indicated a positive correlation, but with a very high significance value indicating little or no reliability.

Combining all of the data yields a general picture of agreement between the project managers and superintendents with regard to qualities necessary for construction to remain a leading industry. This conclusion is not statistically significant but can be said with some confidence as all three indices agree that there exists a positive correlation.

4.2 Attributes and ideal company needs to prosper and grow

4.2.1 Responses and trends

The second survey instructed participants to, "…look at what attributes an ideal company needs to not only survive within the construction industry, but also to prosper and grow." A partial list of responses is below:

Safety	Diversity	Vision/Goals
Loyalty	Reinvest for the future	Exposure
Training	Work environment	Set standards
Develop relationships	Recognize achievement	Diversify project types
Promote from within	Respect employees	Industry leadership

There is a noticeable difference in the tone of responses between this and the previous question. The attributes given as responses in this survey tended to be more generic. The nature of the question is much less personal than the previous survey. Responses tended to take more of a global nature as opposed to one of self-interest. Given the nature of the responses it may be that the question required knowledge and experience beyond that of the respondents, and would have been better addressed by upper level management. Generally, individuals involved in the day to day activity surrounding a project do not appear to be concerned with generalizations of ideal conditions that impact their industry. They are much more focused with the project specific aspects of success. While the feedback received can indicate general sentiments of the layperson, there is no empirical validation of its accuracy or astuteness. Interestingly enough there are some responses that indicate a higher level of strategic analysis. Developing relationship is critical to private party construction work. It's interesting that this need to develop and foster relationships trickles down to the managerial levels and its importance is recognized.

Responses and rankings tended to be substantially different depending on whether the group members where project manager or superintendents. Across all three years training/education, safety, communication, quality, and workforce issues

consistently came up. Training/education ranked 2 and 7, 2 and 3, and 7 and 1 over the three years with project managers ranking being listed first. Communication ranks 4, 3, and 1 in the three superintendent surveys but shows up in only one year for project managers ranking 6 in 2005. This would seem to indicate that superintendents feel that companies require communication to prosper and grow while project managers do not feel it is near as important. Likewise safety ranks 2, 4, and 2 in superintendents surveys while it only shows up once at rank 6 in 2003 in project manager's surveys. Quality showed up at various ranks throughout the survey both for project managers and superintendents, as well as workforce related responses.

4.2.2 Observational study

In the 2004 survey there was no defining attribute that received a large percentage of the votes. The distribution is broad and varied. Project managers felt that a vision or a defined goal was the most important thing in enabling companies to stay strong. They also felt that it was important for a company to recruit and retain employees and share the wealth. It is ironic that in order to recruit and retain employees it's necessary to share the wealth. The idea conveys a sense of equity distribution that is generally lacking within the industry. In an industry dominated by individual proprietorships we see a strong desire by management to have some interest in the business. It is worthy of note that superintendents placed goals and promotion at the bottom of their ideal attributes. While they noted them as important they felt that education and compensation were much more important toward the companies overall strength within the industry.

Communication and safety was cited over all three years as important for superintendents. Project managers varied in the specificity of their responses, but tended to place importance upon the people and workforce of the construction company. Responses such as people, recruit/retain employees, and quality workforce demonstrate a significant amount of importance being placed upon the workers that comprise an organization. Superintendents and project managers tended to significantly differ in their opinions and relative weighting of different areas. Safety rated insignificantly on project manager's responses and the quality of the workforce was cited once by superintendents. Education and training again had a prominent position in 4 out of 6 surveys and was cited in all 6. Interestingly compensation and pay was not cited as an attribute integral to a companies prospering and growth. Wages/benefits and "share the wealth" were the only responses that related to compensation. It would seem that both project managers and superintendents do not recognize compensation and pay as important to prospering and growth.

Responses and rankings tended to be substantially different depending on whether the group members where project manager or superintendents. As noted in the survey information across all three years training/education, safety, communication, quality, and workforce issues consistently arose as issues, but with little consistency. The average ranking over the three years for training/education is exactly the same for project managers and superintendents. This indicates that both groups feel this is an important attribute that a company needs to prosper and grow. Survey rankings indicate that superintendents feel that companies require

communication to prosper and grow while project managers do not feel it is near as important. Likewise significant safety rankings in superintendents surveys with the lack of ranking in project managers surveys demonstrates that recent safety emphasis has not reached the office managerial level with the same impact as the field. Again as superintendents are much closer to the physical construction of the project they may realize and be directly impacted by the need for construction project safety more than office personnel. By implication this may also indicate that current emphasis on safety training has made an impact with field personnel, but has still failed to significantly impact office personnel.

4.2.3 Statistical analysis

Average survey responses for the qualities necessary for a company to prosper and grow indicated a negative correlation. Ranked responses yielded a Spearman correlation of -0.821 which indicates with some level of strength divergent opinions between the two groups of individuals. This indication is further corroborated by a negative Pearson's correlation of -0.68. The strength of these responses indicates that this subject may be a source of contention between the two groups of managers.

Annual surveys tested for 2003 and 2004 also indicated divergent opinions although not with the same level of strength as the averaged survey responses. Although the annual surveys did not have negative correlations with the same level of strength as the average survey's the still support the general negative correlation that exists between the two groups.

4.3 Attributes an ideal superintendent needs to successfully lead a project

4.3.1 Responses and trends

The third survey instructed participants to, "…list the attributes an ideal superintendent needs within a company to successfully lead a project." A partial list of responses is below:

Leadership	Motivator	Level Headed
Fair	Accountability	Problem solver
Organized	Creative	Self-Motivated
Negotiator	Loyal	Opinionated
Flexible	Vision	Experienced

As expected there is a strong shift back to individual oriented responses. The survey was intended to generate personal attributes that are specific to an individual. We see responses that vary from typical character attributes such as "loyal" to phrases that seem to encompass an overall manner of business conduct. (i.e. "level headed")

It is clear that communication is a very important to both project manager's and superintendents. It ranked 5, 1, and 3 in project manager's rankings and 1, 1, and 2 in superintendent's rankings. Responses such as field experience, knowledge, technical competence, and ability to see the "big picture" indicate a strong preference by both project managers and superintendents for superintendents to have experience and competence in their field of supervision.

4.3.2 Observational Study

Superintendent's clearly stated that "communication" is the most important attribute possessed. Project Manager's felt the same although not with the same

amount of conviction. The ability to communicate, as seen by superintendents, is clearly the essential component of any superintendent's skill set. Day to day coordination is the primary responsibility of any jobsite superintendent. If the super cannot clearly convey project elements to his project manager or subcontractors the project will experience problems. It is also interesting that organization showed up only as the seventh most important attribute in the project manager's list for 2004 and was only alluded to in the "vision/foresight" response of 2003. The superintendents didn't find it worth noting at all. Knowledge and experience was highly rated by both groups. Both groups tended to recognize the importance of a superintendent having field or related technical knowledge of the jobsite and physical construction of the project. Project managers seem to allude to a desire in the superintendent to grasp the larger elements of the project. Responses such as "ability to see "big picture" and vision/foresight speak to a superintendents ability to comprehend the totality of events that will bring a project together as opposed to simply the day's activity. This concept seems not to have occurred to superintendents. The ability to see beyond the day to day events and the crisis of the minute is important to managers. A superintendent must have an ability to understand the integration of all parts to the process as a whole, as well as how each decision affects all of the entities involved in the project. This is an important element of project performance and can drastically affect management and owner perception of the project's success or failure. I couple this with the project manager's "budget awareness" response. We can observe the "Positive and fair"

and "Patient" attributes submitted by the superintendents as similar to the "Respect" attribute submitted by the Project Managers.

In ranked responses it is clear that project managers and superintendents recognize the importance of items such as communication and experience/knowledge as very important in a superintendent. Every survey response whether project manager or superintendent cited this knowledge and communication as the first, second, or third response in their surveys. Additionally, there is also consistency with concern regarding the superintendent's personal characteristics. Both groups tended to place importance on things such as motivation, positive and fair, patient, personable, respect, leadership, commitment, and decisive. While these responses generally were ranked lower a general picture arises of a well-rounded individual with strong personal character and integrity that can adequately deal with the varied and often confrontational portions of the construction process.

These responses give a definite overview of aspects pertinent to the project superintendent's scope of work. Items such as experienced, flexible, and negotiator speak to the day to day supervision that is necessary when all the trades are working in a close, confined area. The superintendent has to organize all of the trades that will be in different areas. Handling multiple foremen with competing agendas and schedules is often a precarious task necessitating many of the attributes listed above.

4.3.3 Statistical analysis

Attributes required for a superintendent to successfully lead a project indicated a general amount of agreement, but were not statistically significant. A Pearson value of .629 indicates that there was general agreement between the two groups, but the agreement was marginal and cannot be submitted with a high degree of certainty.

Annual surveys supported an inconclusive response. The rankings test from 2003 yielded a negative correlation which does not match with the data from averaged responses. Additionally, 2005 survey responses gave a correlation coefficient of 0. Taken with the averaged Spearman and Pearson coefficient's this is inconclusive and difficult to comment on.

4.4 Attributes an ideal project manager needs to successfully lead a project

4.4.1 Responses and trends

The fourth survey instructed participants to, "…list the attributes an ideal project manager needs within a company to successfully lead a project." A partial list of responses is below:

Leadership	Confidence	Organized
Knowledge	Mediator	Diplomat
Attitude	Decisive	Financial Competence
Listener	Delegate	Sincere
Accountable	Open Minded	Negotiator

There are many similarities between the lists generated by project managers and superintendents. However, there are topics not present in the superintendents list. Responses such as diplomat, financial competence, and mediator depict

characteristics that represent differences between the role of project manager and superintendent. It appears that groups are recognizing the need in the project manager to have the ability to resolve conflict, monitor financial progress, and keep multiple parties happy. There are some interesting parallels and connections wither the attributes. For instance, in order to be a good negotiator and diplomat the individual must have confidence, as well as a sincere mediator. Additionally, the attributes describe an individual that can handle potentially difficult and contentious situations. The project manager has to have the fundamental ability to relate to and deal with and properly manage all of a customer's needs. Many times the project manager will have much more contact with the customer, whereas the project superintendent will have more contact with the trades completing the work.

4.4.2 Observational Study

In all of the responses it is very interesting to note the responses and feedback from the 2004 superintendent responses. The strong desire for communication coupled with team orientation and honesty indicate a strong desire on the part of superintendents to have these items incorporated into leadership attributes. Roundtable discussion clearly indicated that top responses by superintendents need to be interpreted as a response to deficiencies in existing project managers. Often superintendents feel left out on important information, that the PM is not working with them, and that the PM will tell them what they think they want to hear. Superintendents are used to speaking honestly and directly to the point. They appreciate others treating them with the same respect and courtesy. Often a PM will take the easy solution with a superintendent. Both parties

recognized the strong need for communication, but it is important to note that part of the project manager's responsibility is to know *what* to communicate. Information, positive and negative, often travels very fast. A project manager needs to be discerning in deciding exactly what information needs to be transferred and to whom. He also needs to be cognizant of the ramifications and reception of each and every comment.

It's very clear the importance that project manager's place upon communication. It was listed as the most important item on all three of the surveys administered. Superintendents indicate that communication is very important in two of three surveys, but without as much uniformity as managers. Superintendents from 2004 clearly indicate a strong dispensation toward communication; however, it does not even show up on the 2005 list of attributes. Across the spectrum of survey responses from all three years there was little uniformity. Organization and planning seemed to have some importance, but was not strongly prominent in all surveys. As with superintendents personal characteristics such as attitude, integrity, respect, honest, loyal, and motivated were listed with varied rankings. There seemed to be no dominant theme with regard to importance. There also existing a high level of variance in responses from year to year.

4.4.3 Statistical significance

A strong positive correlation was obtained with regard to the attributes that project managers need to have to successfully lead a project. Spearman's correlation value of .9, along with Pearson's correlation value of .909 lead us to the conclusion that project managers and superintendents are in agreement in the

importance of the attributes required by project managers to successfully lead a project.

Interestingly, annual surveys analyzed from 2004 and 2005 give no clear support of the averaged rankings. Both years yield alternatively positive and negative correlations of very miniscule strength. The averaged data would indicate a general trend over the three years and the annual surveys would designate specific similarities or differences in any given year.

4.5 Top attributes required for the leader/manager balance of a project manager

4.5.1 Responses and trends

The fifth survey asked, "from the lists generated about both Leadership and Management skills, list the top five attributes in order of most important #1 of Leader/manager balance required of a project manager ..." A partial list of responses is below:

Details	Cost Minded	Principled
Confident	Respectful	Knowledge
Motivator	Efficient	Focused
Leader	Innovative	Goal Oriented
Detail oriented	Assertive	Flexible

The Merriam-Webster online dictionary defines manage as "to handle or direct with a degree of skill." A manager is someone who gets things done. They are concerned with the elements of whatever task is before them. They can accurately assess tasks that need to be completed, in what order, and by whom.

Lead is defined as "to direct on a course or in a direction." This carries the connotation not only of task, but also of direction and vision. As alluded to in the literature review the leader is not concerned as much with the how as much as the way. The leader defines the objective, spearheads the charge, and motivates others on the team. We could describe the manager as carrying out the vision provided by the leader. While the definitions substantively differ, they have many similarities. Oftentimes an individual is charged with demonstrating both leadership and management at the same time. Lists of attributes were generated that would describe both leadership and management for a project manager.

As discussed earlier this can also speak to some of the differences in the roles that the project managers & superintendents are fulfilling. The question was posed to both groups and there is a similarity in the responses between both. The interesting thing to note is the different capacities that responses speak to.

4.5.2 Observational Study

We can see clear parallels between the project managers list of attributes and the attributes they submitted that would lead to a successful overall project. Attributes are the same and in the same rank as the previous survey. It is important to note the difference in superintendent's perspective. They felt that knowledge, organization, and communication were leader/manager attributes that needed to be demonstrated by the project manager. Note that these attributes stand in stark contrast to the communication, team-oriented ness, and honesty they felt was important for a project to be successful.

Again communication has a strong showing. It is present in all six surveys and is listed as the most important attribute in the project manager's surveys across three years of data collection. As with the attributes of most importance in a project manager to successfully lead a project the superintendents consistently list communication as a required attribute, but not with the same level of uniformity as project managers. Responses varied from relating to the organization and planning efforts to the efficiency and effectiveness of the project manager. Both groups recognized the importance of organization and planning in the project manager although relative importance and responses varied. Reponses such as delegator, organized, structure, and planner indicate that both groups desire a project manager to have strong managerial skills in their background and skill set. In general the ranking of responses was substantially different for all years.

4.5.3 Statistical analysis

The statistical analysis for the attributes required for the leader/manager balance in a project manager yields values of .4 for Spearman's correlation and .444 for the Pearson correlation. Both values being similar indicate that there is a general agreement that on the ranking of the attributes for the leader/manager balance, but it is not statistically significant and should be interpreted as only and indication that the two groups agree.

Annual surveys again indicate somewhat diverging views. 2004 yielded a relatively strong .6 Spearman correlation, but 2005 had a contradictory -0.017 correlation coefficient. The combined data indicates a general positive correlation, but with no over-arching consistency.

4.6 Top attributes required for the leader/manager balance in a superintendent

4.6.1 Responses and trends

The sixth survey asked, "from the lists generated about both Leadership and Management skills, list the top five attributes in order of most important #1 of Leader/manager balance required of … a superintendent." A partial list of responses is below:

Patient	Communicate	Motivator
Listen	Inform	Efficient
Common sense	Fair	Innovative
Personable	Knowledgeable	Positive
Detail Oriented	Cost Minded	Self Motivated

Again observing the responses there is a noticeable similarity to the responses derived with regard to superintendents and project managers. Both groups have to possess and utilize leader/manager attributes, although they are manifested differently.

4.6.2 Observational study

It is clear that project manager's want superintendents to be geared toward management. Leader/manager attributes such as schedule, problem solver, detail oriented, coordinator, and communication indicate that they want a superintendent to be much more of a manager than a leader. The role of the superintendent is largely to make sure things get done in an efficient and timely manner. They protect the interests of there general contractor as well as the client. The overall success or

failure of the project can be correlated to the superintendent's ability to manage effectively. It seems that an overall shift has taken place in the industry and superintendents are being responsible for much of the day to day contact and coordination in a jobsite. Project managers are utilized for some coordination, but as they generally have a significant number of projects under construction they will leave much of the day to day administration in the hands of the superintendent.

While there was general uniformity in the responses there tended to be a strong lack of consistency with regard to the relative rank of responses. As with some other surveys communication was ranked on 5 out of 6 surveys, but its rank was substantially different depending on the year. It did hold as the #1 attribute in 3 out 6 surveys. Also, many previous items showed up in surveys but with seemingly little consistency either across years or populations. Organized, motivated, knowledge, efficient, and effective all showed up across more than one year, but there were no strong similarities.

4.6.3 Statistical analysis

The statistical analysis indicates that superintendents and project managers had mildly divergent views on the attributes that a superintendent needs for the leader/manager balance. A Spearman's correlation of -0.4 and a Pearson correlation of -0.187 indicates that the project managers and superintendents did not agree on the rankings of various attributes. That lack of agreement indicates that there may exist a lack of understanding and uniformity in the preferred attributes for this survey.

Annual survey's had widely inconsistent responses that were not easily correlated from project managers to superintendents. There were no year(s) that had more responses in common than was observed in the averaged surveys. This lack of consistency in years is easily anticipated as a negatively correlated response list. The fact that different responses were generated from managers and superintendent's leads one to the inevitable conclusion that both groups disagree over what was important.

4.7 Factors motivating workers

4.7.1 Responses and trends

The seventh survey is a ranking of different factors that motivate a worker. As opposed to previous lists this was generated by the facilitators and given for completion. The motivators were ranked from one to ten, one being the most effective motivator. Accordingly the attribute with the least number of points will be most valued by the group.

Interestingly enough project managers consistently ranked promotion/growth and appreciation or work done as the first and second ranked responses over all three years. Superintendents did not have similar consistencies in their responses. Project managers and superintendents listed tactful discipline and help with personal problems as least important.

4.7.2 Observational Study

As opposed to previous surveys having responses given to the respondents for selection provides a controlled set of variables from which we can observe differentiation. From the data received it's very clear that individuals in positions of

leadership in construction organizations place little value on tactful discipline or help with personal problems. These items were consistently ranked at the bottom of each survey administered.

The project managers consistently ranked Promotion/growth and appreciation of work done as the top two items on their effective motivator rankings. Superintendents consistently placed those items lower in their rankings of effective motivators. Project managers typically listed good pay and interesting work as their third, fourth, or fifth effective motivators with job security being the final of the top five most popular motivators. Being in on things was listed in the top five on one survey. It would seem that project managers seek to have validation of their efforts and room to expand their horizons. These are the things that motivate them in the workplace.

Superintendents had varied responses that generally fell into the top five or the bottom five of their effective motivators. Good pay was listed higher with a first, second, and third ranking. Interesting work and job security also secured the top spot in superintendent's motivator rankings although these came in fifth and fifth and sixth and fifth in subsequent surveys. Promotion/Growth were listed as fourth, fourth, and second in surveys. Loyalty to employee, good working conditions, and being in on things were typically in the sixth, seventh, and eighth positions of most surveys.

If we look beyond the data it appears that project managers have a confidence in themselves and their performance. Industry wide managers experience a higher level of job security than superintendents. Their lack of concern over the loyalty or job security indicates must mean they have confidence in their

ability to perform and/or the construction climate has been relatively stable over the past several years. Conversely superintendents live to a large extent from job to job. If there is no job there is no place for them to go and they are laid off or sent home for a time.

4.7.3 Statistical analysis

The statistical analysis indicates that there exists a statistically significant correlation in the effective motivators between project managers and superintendents. This survey yields a Pearson coefficient of 0.937 indicating strong agreement between groups with regard to effective motivators.

Annual survey responses for 2003, 2004, and 2005 also yield positive correlations. 2004 & 2005 yield statistically significant responses at the .01 confidence level. From this data coupled with average scores it is readily apparent the general trends and motivators for construction superintendents and managers.

4.8 Roundtable discussion

To the superintendent, information from the project manager is often highly relevant and of the utmost importance. The project manager is often in contact with the design team. Many times important decisions are made in meetings that the superintendent is not a part of. A surprising amount of animosity was found on the part of superintendents directed toward project managers. Many of the surveys strong emphasis on communication, coupled with emphatic discussion at roundtable discussions, bear this out.

Additionally, superintendents indicated that project manager's lacked the requisite background and knowledge to be managers. The traditional arrangement

for supervisors was to rise through the trades. Indeed, many of the superintendents began as pre-apprentices and worked 10-20 years to rise to the position of superintendent. While they lack formal education they have a strong working knowledge of the how something is actually constructed. (Deatheredge, 19) They also have a respect of the crew that allows them to "crack down" on poor work ethic. It's interesting to note these men get "… production from their men far greater than is possible to achieve with the highly paid, pampered craftsmen of today." (Deatheredge, 19) While these individuals exist within the industry there has been a shift to hire younger, more formally educated managers. This shift has created a rift and resentment within the superintendents as they are being placed in subordinate or equal roles with younger, inexperienced managers. This lack of respect is exacerbated by a lack of communication. Now, not only do superintendents feel ignored, they feel ignored by individuals who are technically inferior and organizationally superior. It's a situation ripe for resentment. It was made very clear that communication is significantly valued by both groups of individuals and superintendents felt it was lacking in project managers. Interestingly, while this difference was verbalized in roundtable discussions, it was not reiterated with the strength and uniformity from survey responses as suspected. The subject seems to be such that it can be exacerbated when in an intimate setting with individuals who are not particularly familiar with one another.

4.9 Significance Testing

	Method	Survey	Spearman's Correlation (rho)	Pearson's Correlation	Significance (p-value)	Sample	Notes
3 YR AVG	RANKS	Qualities necessary for construction to remain a leading industry	0.8		0.104	5	Indeterminate
3 YR AVG	RANKS	Attributes an ideal company needs to prosper and grow	-0.821		0.089	5	Indeterminate
3 YR AVG	RANKS	Attributes an ideal sup needs to successfully lead	0.3		0.624	5	Indeterminate
3 YR AVG	RANKS	Attributes an ideal PM needs to successfully lead a project	0.9		0.037	5	Sig @ .05 CI
3 YR AVG	RANKS	Attributes required for the lead/man balance in a PM	0.4		0.6	4	Indeterminate
3 YR AVG	RANKS	Attributes a sup needs for lead/man balance	-0.4		0.6	4	Indeterminate
3 YR AVG	RANKS	Effective motivator ranking	0.762		0.01	10	Sig @ .05 CI
3 YR AVG	SCORES	Qualities nec for const to remain a leading ind		0.418	0.483	5	Indeterminate
3 YR AVG	SCORES	Qualities nec for company to prosper and grow		-0.68	0.207	5	Indeterminate
3 YR AVG	SCORES	Attributes a sup needs to successfully lead		0.629	0.256	5	Indeterminate
3 YR AVG	SCORES	Attributes a PM needs to successfully lead		0.909	0.032	5	Sig @ .05 CI
3 YR AVG	SCORES	Attributes a PM needs for lead/man balance		0.444	0.556	4	Indeterminate
3 YR AVG	SCORES	Attributes a sup needs for lead/man balance		-0.187	0.813	4	Indeterminate
3 YR AVG	SCORES	Effective motivator ranking		0.937	0	10	Sig @ .01 CI
ANNUAL	RANKS	2004 Qualities necessary for construction to remain a leading industry	0.095		0.823	8	Indeterminate
ANNUAL	RANKS	2003 Attributes an ideal company needs to prosper and grow	-0.144		0.734	8	Indeterminate
ANNUAL	RANKS	2004 Attributes an ideal company needs to prosper and grow	-0.226		0.559	9	Indeterminate
ANNUAL	RANKS	2003 Attributes an ideal sup needs to successfully lead	-0.317		0.406	9	Indeterminate

ANNUAL	RANKS	2005 Attributes an ideal sup needs to successfully lead	0	1	7	Indeterminate
ANNUAL	RANKS	2004 Attributes an ideal PM needs to successfully lead a project	-0.167	0.693	8	Indeterminate
ANNUAL	RANKS	2005 Attributes an ideal PM needs to successfully lead a project.	0.119	0.779	8	Indeterminate
ANNUAL	RANKS	2004 Attributes required for the lead/man balance in a PM	0.6	0.208	6	Indeterminate
ANNUAL	RANKS	2005 Attributes required for the lead/man balance in a PM	-0.017	0.996	9	Indeterminate
ANNUAL	RANKS	2003 Effective Motivator Ranking	0.3	0.433	9	Indeterminate
ANNUAL	RANKS	2004 Effective Motivator Ranking	0.809	0.004	10	Sig @ .01 CI
ANNUAL	RANKS	2005 Effective Motivator Ranking	0.927	0	10	Sig @ .01 CI

Table 4.2 Significance testing

Significance test results will be addressed in the conclusion section of the thesis.

Chapter 5: Conclusions

5.1 Survey conclusions

From the responses given conclusions can be drawn with varying levels of conviction. It is very clear from survey responses and data analysis that there are widely diverging opinions within the project managerial levels of construction that range from significantly different to significantly similar. Opinions are separated into the following generalizations: significantly similar, similar, generally similar, somewhat similar, somewhat divergent, generally divergent, divergent, and significantly divergent. From the tests administered the following conclusions can be generated: Other findings of interest from the data not related to the hypothesis are discussed in the following sections.

- Construction managers and superintendents have ***significantly similar*** perspectives with regard to effective motivators.
- Construction managers and superintendents have ***significantly similar*** perspectives with regard to attributes an ideal project manager needs to effectively lead a project.
- Construction managers and superintendents have ***generally similar*** perspectives with regard to qualities necessary for construction to remain a leading industry.

- Construction managers and superintendents have ***generally similar*** perspectives with regard to attributes required for the leader/manager balance in a project manager.
- Construction managers and superintendents have ***somewhat similar*** perspectives with regard to attributes required for the leader/manager balance in a superintendent.
- Construction managers and superintendents have ***somewhat diverging*** perspectives with regard to the required attributes for the leader/manager balance in a superintendent.
- Construction managers and superintendents have ***diverging*** opinions on the attributes an ideal company needs to prosper and grow in the construction industry.

5.2 Observational conclusions

With the above information it is understood that we can offer the following generalizations from the response lists generated:

- Both project managers and superintendents felt that education, marketing, and income are felt to be important qualities for construction to remain a leading industry.
- Project managers and superintendents disagreed over the attributes an ideal company needs to prosper and grow. Project managers felt that the education and a quality workforce were important. Superintendents felt that education, safety, and communication were important.

- Project managers and superintendents agreed on the attributes that a superintendent needs to successfully lead a project. Communication, knowledge and experience, and strong personal characteristics are cited by both groups as fundamental attributes that contribute to project success.
- Project managers and superintendents agree on the attributes that a project manager needs to successfully lead a project. Consistent attributes desired in a project manager include communication, teamwork, and personal characteristics.
- Project managers and superintendents agree on the attributes that are required for the leader/manager balance in a project manager. They consistently felt that communication was essential to this balance.
- Project managers and superintendents did not agree on the attributes that are required for the leader/manager balance in a superintendent. While the lack of agreement did not yield essential attributes common responses included communication, organized, motivated, knowledge, efficient, and effective.

5.3 Hypothesis tests

The first hypothesis tested stated that leadership attributes for project managers would be more relationship oriented than task oriented. After reviewing the responses and statistical testing this hypothesis is supported by the data. Both project managers and superintendents agreed that communication, teamwork, and personal characteristics are important attributes for a project manager to

successfully lead a project. Additionally, project managers and superintendents agree that communication was an essential attribute key to the leader/manager balance in a project manager. These characteristics lend themselves to relationship oriented motivators which is consistent with the asserted theory of leadership required in a project manager.

Hypothesis #2 stated that the leadership attributes required in a superintendent will be more task oriented than relationship oriented. The data yields inconclusive results relative to this hypothesis. Project managers and superintendents have somewhat similar and somewhat divergent perspectives regarding attributes to successfully lead a project and attributes required for the leader/manager balance in a project. Additionally, common attributes such as communication, knowledge, experience, and strong personal characteristics provide a contrasting perception of the superintendent. Knowledge and experience would lend themselves to the task specific nature of the work being overseen, but communication and knowledge would illicit a relational leader similar to what was found in the project manager.

Hypothesis #3 read that attitudes regarding company needs to prosper and grow will be different between project managers and superintendents. This hypothesis was supported by the data collected. Project managers indicated that they felt that a company needed education a quality workforce to prosper and grow. Superintendents indicated that they felt that education, safety, and communication were important for a company to prosper and grow. Additional items were listed in individual years, however, there was consistent disagreement between groups.

Hypothesis #4 stated that attitudes regarding desired attributes and characteristics in project managers and superintendents will be different between project managers and superintendents. This hypothesis was actually contradicted by the data collected. It was found that project managers and superintendents tended to have more items that they agreed upon than disagreed.

5.4 Recommendations

Based on this study the following recommendations are made:

- Managers and superintendents within organizations should address communication needs. Systems for distributing information should be evaluated with feedback from managerial personnel. This was by far the most consistent attribute of concern between both groups over multiple surveys.
- Education and training should be an industry focus in order to keep it a leading industry. This was strongly emphasized in recorded data.
- Companies should analyze company specific personnel when performing self-critique. It was found that responses and attributes differed from year to year depending on the annual conference demographic. Any corporate analysis should heed its internal demographics.

- Future research in this area should note the formulation of surveys and survey responses. Giving respondents total freedom allowed interaction and dialogue that may not have otherwise occurred. Utilizing this method of response development led to challenges in data collection as the sample size of common responses over 3 years remained relatively small.

APPENDIX A: ANNUAL SURVEYS SCORED AND RANKED RESPONSES

TABLE 3: 2003 Qualities necessary for construction to remain a leading industry.

Project Manager		Superintendent	
Score	**Quality**	**Quality**	**Score**
145	Image	Image	84
134	Education	Education	71
97	Competitive Income	Pay	68
93	Safety	Younger involvement through technology	50
86	Quality	Pride	47
84	Opportunity for Growth	Recruit	40
33	Fragmentation	Work Place Environment	32

TABLE 4: 2004 Qualities necessary for construction to remain a leading industry.

Project Manager		Superintendent	
Score	**Quality**	**Quality**	**Score**
149	Education	Educate public of opportunity	78
80	Technology	Education	65
71	Compensation	Opportunity to Advance	60
51	Public Relations	Public Relations	58
48	Career vs. Job	Compensation	45
45	Innovation	Technology	42
26	Better Environment	Market flexibility	26

TABLE 5: 2005 Qualities necessary for construction to remain a leading industry.

Project Manager		Superintendent	
Score	**Quality**	**Quality**	**Score**
69	Better P.R./marketing	Workforce	48
65	Accountability	Relationships	42
63	Quality product/craftsmanship	Accountability	34
63	Workforce	Attitude	33
47	Delivery method	Adaptability/technology updates	31
40	Communication	Better P.R./marketing	31
39	Educate owners	Loyalty	20
31	Safety	Education	18

TABLE 6: 2003 Attributes an ideal company needs to prosper and grow in the construction industry.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
83	Quality	Customer Service	53

83	Education	Safety Training	52
79	Marketing/Image	Education	44
62	People	Communication	39
58	Customer Relationships	Qualified People	32
53	Safety	Quality	32
46	Integrity/Pride		

TABLE 7: 2004 Attributes an ideal company needs to prosper and grow in the construction industry.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
74	Vision/Goal	Education	79
62	Recruit/Retain employees	Compensation	77
55	Share the wealth	Communication	62
38	Technology	Safety	46
38	Loyalty	Team concept	36
34	Good working environment	Goals/Vision	35
23	Training	Promote within	35

TABLE 8: 2005 Attributes an ideal company needs to prosper and grow in the construction industry.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
84	Quality Workforce	Communication	68
72	Training/education	Safety	43
71	Relationships	P.R./community give back	35
48	Safety	Wages/benefits	31
45	Advertisement/sales	Quality Control	22
40	Communication	Attitude	20
38	Goals	Training/education	16

TABLE 9: 2003 Attributes an ideal superintendent needs within a company to successfully lead a project.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
103	Organized	Communicator	69
93	Technical Competence	Safety Minded	37
77	Problem Solver/Resourceful	People person	34
68	Vision/Foresight	Field Experience	34
66	Communicator	Knowledge	30
45	Dependable/Loyalty	Leadership Ability	28
44	Motivator	Motivator	24
35	Safety Minded	Planner	24

TABLE 10: 2004 Attributes an ideal superintendent needs within a company to successfully lead a project.

Project Manager		Superintendent	
Score	Attribute	Attribute	Score
82	Communication	Communication	96
74	Ability to see "big picture"	Knowledge	61
68	Knowledge	Leadership	56
43	Leadership	Goals	51
36	Budget awareness	Positive and fair	45
35	Respect	Patient	27
33	Organized	Personable	23

TABLE 11: 2005 Attributes an ideal superintendent needs within a company to successfully lead a project.

Project Manager		Superintendent	
Score	Attribute	Attribute	Score
102	Planning/foresight/organized	Experience/knowledge	57
99	Experience/knowledge	Communication/relationship	50
82	Communication/relationship	Decisive	29
75	Safety/awareness	Commitment	24
61	Motivation	Closeouts	14
59	Decisive	Safety/awareness	12

TABLE 12: 2003 Attributes an ideal project manager needs within a company to successfully lead a project.

Project Manager		Superintendent	
Score	Attribute	Attribute	Score
101	Communication	Knowledge/Experience	75
84	Knowledge/Experience	Communication	57
68	Planning	Safety	43
52	Attitude	Flexible	19
45	Integrity	Loyal	16
32	Decisive	Motivated	13
26	Fair & Firm	Psychology	13

TABLE 13: 2004 Attributes an ideal project manager needs within a company to successfully lead a project.

Project Manager		Superintendent	
Score	Attribute	Attribute	Score
76	Communication	Communication	134
64	Leadership	Team oriented	52

63	Organized	Honest	46
53	Ability to see "big picture"	Spend time on site	35
41	Knowledge	Knowledge	31
37	Goals	Organized	22
33	Respect	Consensus builder	23

TABLE 14: 2005 Attributes an ideal project manager needs within a company to successfully lead a project.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
78	Communication	Efficiency	31
73	Effective	Control	30
44	Structure	Structure	27
25	Empowerment	Standards	19
24	Control	Technique	16
21	Accountable	Knowledge	13
17	Planning	Effectiveness	10

TABLE 15: 2003 Attributes of most importance required for the leader/manager balance in a project manager.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
64	Communicator	Communicator	49
28	Coordinator	Knowledgable	16
21	Delegator	People Skills	14
20	Visionary	Planner	12
18	Effective	Control	10

TABLE 16: 2004 Attributes of most importance required for the leader/manager balance in a project manager.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
39	Communication	Knowledge	68
29	Knowledge	Organized	51
27	Organized	Communicate	44

24	Budget minded	Decision Maker	20
22	Empowerment	Listens	17

TABLE 17: 2005 Attributes of most importance required for the leader/manager balance in a project manager.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
83	Communication	Effectiveness	36
45	Efficient	Standards	22
29	Structure	Structure	13
28	Control	Empowerment	12
25	Innovative	Technique	11
24	Knowledge	Control	11
20	Trainer	Communication	10
19	Accountable	Knowledge	10

TABLE 18: 2003 Attributes of most importance required for the leader/manager balance in a superintendent.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
44	Communicator	Motivated	42
17	Knowledge	Coordinator	36
17	Motivator	Organized	30
11	People Person	Resourceful/Problem Solver	26
10	Safety	Communicator	24

TABLE 19: 2004 Attributes of most importance required for the leader/manager balance in a superintendent.

Project Manager		Superintendent	
Score	**Attribute**	**Attribute**	**Score**
39	Schedule	Communication	56
28	Problem Solver	Knowledge	52
23	Detail Oriented	Organized	25
22	Coordinator	Efficient	21
21	Communication	Innovative	13

TABLE 20: 2005 Attributes of most importance required for the leader/manager balance in a superintendent.

Project Manager	Superintendent

Score	Attribute	Attribute	Score
83	Communication	Effectiveness	36
45	Efficient	Standards	22
29	Structure	Structure	13
28	Control	Empowerment	12
25	Innovative	Technique	11

TABLE 21: 2003 Effective Motivator Ranking

Project Manager		Superintendent	
Score	Attribute	Attribute	Score
71	Promotion/Growth	Job Security	50
79	Appreciation for a Good Job	Good Pay	54
82	Interesting Work	Good Working Conditions	63
93	Good pay	Promotion/Growth	65
117	Being in on things	Interesting Work	67
119	Job Security	Being in on Things	69
148	Good working conditions	Appreciation for a Good Job	69
162	Tactful Discipline	Tactful Discipline	77
201	Help with personal Problems	Help with personal problems	107

TABLE 22: 2004 Effective Motivator Ranking

Project Manager		Superintendent	
Score	Attribute	Attribute	Score
74	Promotion/Growth	Good Pay	79
85	Appreciation of work done	Appreciation of work done	82
88	Good pay	Loyalty to employee	82
115	Job Security	Promotion/Growth	83
116	Interesting Work	Interesting Work	84
126	Loyalty to employee	Job Security	113
129	Good working conditions	Being in on things	116
139	Being in on things	Good working conditions	129
178	Tactful discipline	Tactful discipline	155
218	Help with personal problems	Help with personal problems	177

TABLE 23: 2005 Effective Motivator Ranking

Project Manager		Superintendent	
Score	Attribute	Attribute	Score
3.5	Promotion/growth	Interesting work	3.9

3.5	Appreciation on work done	Promotion/growth	4.1
3.7	Interesting work	Good pay	4.1
3.8	Good pay	Appreciation on work done	4.5
4.3	Job security	Job security	4.9
5.7	Good working conditions	Loyalty to employees	4.9
5.8	Loyalty to employees	Good working conditions	5.5
7.2	Being in things	Being in things	6
7.9	Tactful discipline	Tactful discipline	7.4
9.6	Help with personal problems	Help with personal problems	9.7

APPENDIX B: 3 YEAR AVERAGE RANKED RESPONSES

TABLE 24: 3 year average of qualities necessary for construction to remain a leading industry.

2	Image	1
1	Education	2
4	Income	3
3	Workforce	4
5	Technology	5

TABLE 25: 3 year average of attributes a company needs to prosper and grow.

2	Education	3
1	Workforce	4
3	Public relations	4
4	Safety	2
5	Communication	1

TABLE 26: 3 year average of attributes a PM needs to successfully lead a project.

1	Communication	1
3	Knowledge	2
2	Personality	3
5	Planning	5
4	Organized/Structure	4

TABLE 27: 3 year average of attributes a superintendent needs to successfully lead a project.

3	Planning	5
4	Experience	2
2	Communication	1
1	Personality	3
5	Safety/Awareness	4

TABLE 28: 3 year average of attributes most important for the leader/manager balance in a PM.

1	Communicator	1
4	Knowledge	2
2	Organized/structure/coordinator	3
3	Effective/efficient	4

TABLE 29: 3 year average of attributes most important for the leader/manager balance in a superintendent.

1	Communicator	1
4	Knowledge	2
2	Organized/structure/coordinator	3
3	Effective/efficient	4

TABLE 30: 3 year average of effective motivator rankings

1	Promotion/growth	3
2	Appreciation on work done	5
3	Good pay	1
4	Interesting work	3
5	Job security	5
6	Loyalty to employees	2
7	Good working conditions	7
8	Being in things	8
9	Tactful discipline	9
10	Help with personal problems	10

TABLE 31: 3 year average of qualities necessary for construction to remain a leading industry.

80	Image	85
118	Education	51
56	Compensation	48
72	Workforce	33
27	Technology	31

TABLE 32: 3 year average of attributes a company needs to prosper and grow.

59	Education	46
69	Workforce	29
41	Public relations	29
34	Safety	47
13	Communication	56

TABLE 33: 3 year average of attributes a PM needs to successfully lead a project.

85	Communication	64
42	Knowledge	40
52	Personality	31
28	Planning	0
36	Organized/Structure	16

TABLE 34: 3 year average of attributes a superintendent needs to successfullly lead a project.

68	Planning	0
66	Experience	58
82	Communication	65
92	Personality	51
50	Safety/Awareness	8

TABLE 35: 3 year average of attributes most important for the leader/manager balance in a PM.

62	Communicator	31
10	Knowledge	28
28	Organized/structure/coordinator	25
21	Effective/efficient	12

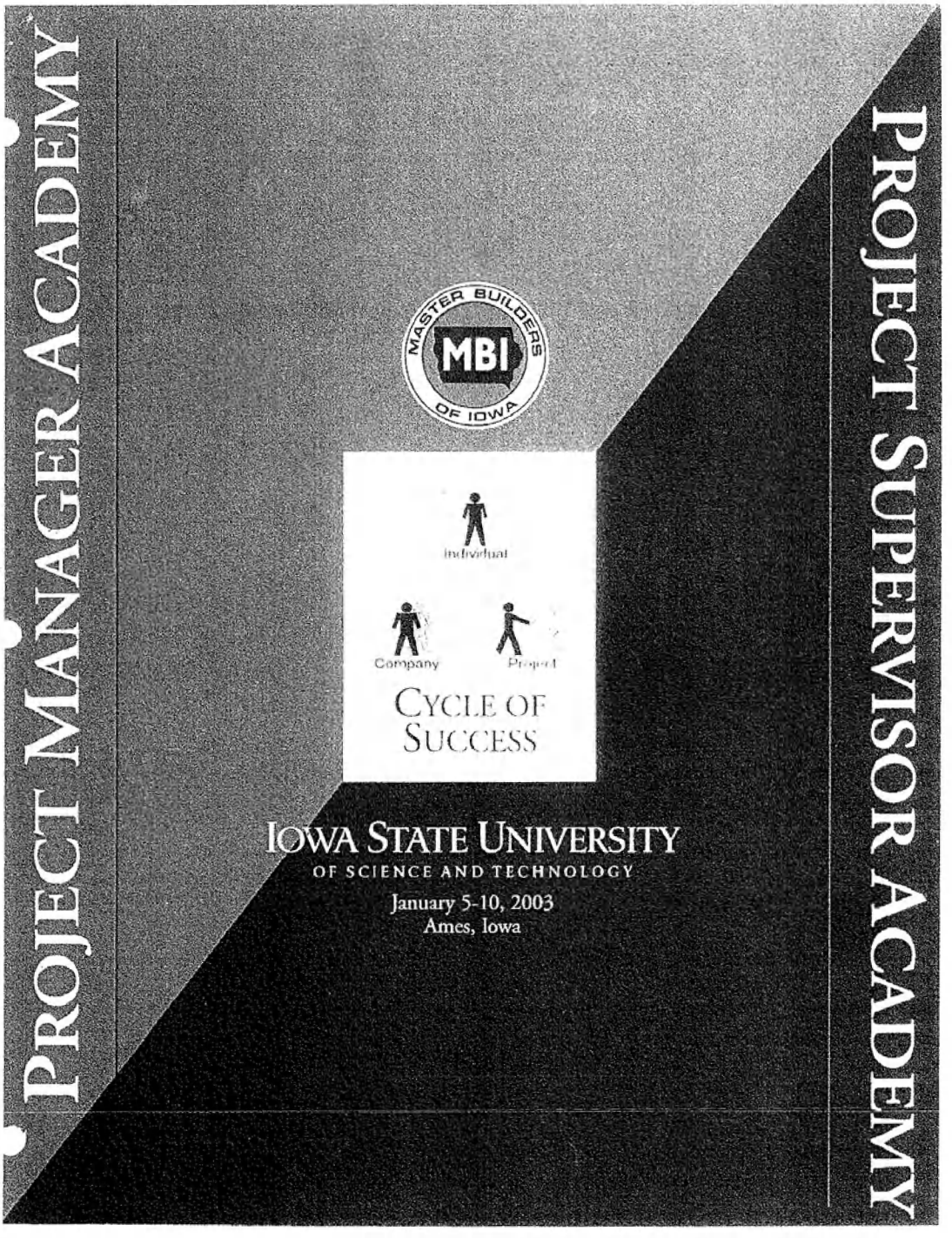
TABLE 36: 3 year average of attributes most important for the leader/manager balance in a superintendent.

55	Communicator	22
9	Knowledge	31
23	Organized/structure/coordinator	30
18	Effective/efficient	12

TABLE 37: 3 year average of effective motivator rankings

3.4	Promotion/growth	4.3
3.7	Appreciation on work done	4.6
4	Good pay	4
4.2	Interesting work	4.3
5	Job security	4.6
5.5	Loyalty to employees	4.2
6.2	Good working conditions	5.4
6.3	Being in things	5.5
7.8	Tactful discipline	6.8
9.6	Help with personal problems	8.7

APPENDIX C: ACADEMY BROCHURE


PROJECT MANAGER ACADEMY
PROJECT SUPERVISOR ACADEMY
MASTER BUILDERS OF IOWA
MBI
Individual
Company
Project
CYCLE OF SUCCESS
IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
January 5-10, 2003
Ames, Iowa

The construction industry is a service industry. Many people see only the physical aspects – the equipment, tools, and the final product. The reality is that it takes a tremendous amount of effort by highly skilled managers and craftspeople to get the job done. On any given project, many people come together for the very first time from different companies with different goals. Under these conditions, it becomes a challenge to successfully meet all your project goals. The solution is effective project leadership. If you and others in your company are viewed as leaders, then members of your team will strive for excellence to meet company and project goals.

OBJECTIVE

The objective of the academics is to create an extensive, highly interactive learning experience to develop the skills of project managers and project supervisors in the construction industry. The curriculum is focused on three areas; the individual, the project, and the company. Participants are challenged to improve personally as a pre-requisite to improvements in their projects and their company. The "Cycle of Success" is an outcome of this approach and is reinforced throughout the week. Ultimately, our goal is to help individuals develop their own pattern for success so that they can advance themselves, their projects, and their company.

WHO SHOULD ATTEND?

An invitation to attend is extended to all individuals in the construction industry who exhibit the ability to lead. We encourage you to invest where it counts – at your project manager and superintendent level. MBI and ISU have designed these programs to provide the right mix of technical knowledge to develop necessary skills while focusing on Teamwork, Leadership, Motivation, and Persuasion. . . the critical attributes for tomorrow's industry.

DATE: January 5-10, 2003

CLASSROOM SITE: Iowa State University-Scheman Building

HOTEL ACCOMMODATIONS: While attending, participants will stay at the Hotel Gateway. Transportation to and from Scheman will be provided.

TUITION FEE: $1,975 (includes course materials, lodging, breakfast, lunch, and evening meals, nightly activities, and special activities.

SCHEDULE OF EVENTS

PROJECT MANAGERS	SCHEDULE
5:00 pm - D.I.S.C. Personality Profile	Sunday
6:00 pm - Welcome Cocktail Reception/Dinner	
7:30 pm - You Want to do What? - Understanding Yourself and Others at Work	
8:00 am - Scheduling for the Project Manager	Monday
1:00 pm - Leadership I	
7:00 pm - Basketball Game–ISU vs. Kansas	
8:00 am - Scheduling for the Project Manger	Tuesday
1:00 pm - Financial Aspects of a Construction Company	
7:00 pm - Scheduling / Finance Case Study (Joint Session)	
8:00 am - Leadership II (part 1)	Wednesday
1:00 pm - Project Pre-Planning	
7:00 pm - Leadership Roundtable Discussion (Joint Session)	
8:00 am - Why Your Punchlist Should Be Your #1 Marketing Tool	Thursday
1:00 pm - Leadership II (part 2)	
6:00 pm - Hickory's Hall BBQ Feast - Construction Industry Trends (Joint Session)	
8:00 am - Sales, Marketing, and Customer Relations - What is Your Role?	Friday
1:00 pm - Wrap Up and Evaluations	

PROJECT SUPERVISORS

- 5:00 pm - D.I.S.C. Personality Profile

6:00 pm - Welcome Cocktail Reception/Dinner

7:30 pm - You Want to do What? - Understanding Yourself and Others at Work

8:00 am - Financial Aspects of a Construction Company

1:00 pm - Scheduling for the Project Supervisor

7:00 pm - Basketball Game- ISU vs. Kansas

8:00 am - Leadership I

1:00 pm - Leadership I

7:00 pm - Scheduling / Finance Case Study (Joint Session)

8:00 am - Project Pre-Planning

1:00 pm - Leadership II (part 1)

7:00 pm - Leadership Roundtable Discussion (Joint Session)

8:00 am - Leadership II (part 2)

1:00 pm - Why Your Punchlist Should Be Your #1 Marketing Tool

6:00 pm – Hickory's Hall BBQ Feast - Construction Industry Trends (Joint Session)

8:00 am - Sales, Marketing, and Customer Relations - What is Your Role?

1:00 pm - Wrap Up and Evaluations

D.I.S.C. PERSONALITY PROFILE

Presented by Dr. Sue Dallam

"You want to do WHAT?" - Understanding Yourself and Others at Work

The D.I.S.C. Personal Profile presents a plan to help you understand yourself and others in the work environment. You will identify the environment most conductive to your success and learn the differences of others and the environment they require for maximum productivity and teamwork in the organization.

FINANCIAL ASPECTS OF A CONSTRUCTION COMPANY

Presented by Rod Foster & Doug Roozeboom

How a construction company operates financially is not always clear to personnel mostly involved with projects. This session is designed to help you understand the financial aspects of a construction company and how financial considerations impact both short and long-term decisions. You will conduct an in-depth examination of a contractor's balance sheet and accompanying schedules and gain an understanding of how construction revenue is recognized. Learn how to compute earned revenue and why properly accounting for job cost or measuring labor productivity is critical in determining the profitability and competence of a contractor. Learn why cost control is so crucial, the types of costs included or excluded, and the importance of generating reliable costs-to-complete a project. Finally, learn how to compute Costs-in-Excess/Billings-in-Excess for presentation on the balance sheet and discuss specific examples of what situations lead to being "under" or "over" billed.

SCHEDULING FOR THE PROJECT SUPERVISOR

Presented by Richard Merkhofer

The seminar will address how the project supervisor can work closely with the project manager and sub-contractors to produce a workable Critical Path Method (CPM) schedule that can be effectively utilized by both the supervisor and sub-contractor in the field. The presentation will include in-depth discussion on schedule formats, proper use of CPM scheduling documents and integration of the supervisor's schedules into the master project schedule.

LEADERSHIP - SESSION I *Presented by Charles Cook*

Session I will begin with a Program Overview and will cover the following topics: Importance of Leadership; The Project Manager - Superintendent Relationship; Transformation Model; Leadership Focus; Motivation

LEADERSHIP - SESSION II *Presented by Charles Cook*

Part 1 - This session will include the following highlights - The Dynamics of Leadership; Leadership Qualities; and Communicating as a Leader

Part 2 - The outline for the conclusion of Cook's session is: Conflict Resolution; Leadership Strategy; and Coaching for Success

SCHEDULING FOR THE PROJECT MANAGER

Presented by Richard Merkhofer

The seminar will address how the project manager can use the Critical Path Method (CPM) scheduling process to effectively manage projects and utilize the CPM schedule as a documentation tool to prevent disputes/claims. The presentation will include in-depth discussion on management's reports analysis of time related charge orders/delays and available methodologies for resolving disputes.

PROJECT PRE-PLANNING *Presented by Robert Bowen*

Proper up-front planning is critical to a successful project. This session will take an in-depth look at the process of preplanning and how it relates to the bottom line. Topics discussed include assigning key personnel, schedule development, brainstorming, budget/estimate review, procuring critical materials and material handling, equipment and personnel needs, production budgeting, and preconstruction conferences. Understand why it is critical for project management to be empowered to make decisions and how this is accomplished.

LEADERSHIP ROUNDTABLE DISCUSSION

Facilitated by Charles Cook

Combined Project Managers and Project Superintendent attendees will participate in a roundtable discussion of survey results.

WHY YOUR PUNCHLIST SHOULD BE YOUR #1 MARKETING TOOL

Presented by Ted Garrison

This program discusses why the punchlist might be the most important element of a project. It's an interesting phenomenon that if you make a mistake and fix it to meet or exceed the customer's expectations, that customer will be more loyal than if you never made the mistake in the first place. The good news is that your punchlist is a built-in mistake list. No one really expects you to build something without errors, but customers still have high expectations about how the punchlist will be resolved. The program explores how to manage the punchlist process more effectively in order to gain greater customer loyalty, which translates into increased profits.

HICKORY'S HALL BBQ FEAST - CONSTRUCTION INDUSTRY TRENDS

Presented by Eric Sanderson

This informative session from Fails Management Institute will give you the "big picture" regarding the direction of the construction in the near as well as the not-so-near future. We will look at economic trends, demographics, sectors outlook, organizational trends, and recommendations for the future. This should prove to be an evening of good food and stimulating information that will prepare us for Friday morning's message.

SALES, MARKETING AND CUSTOMER RELATIONS - WHAT IS YOUR ROLE?

Presented by Eric Sanderson

Sales, marketing, customer relations, or whatever you want to call it, is an important factor in the development of every person in a construction company. This session is focused on customer service for field managers and will include topics such as: identifying owner needs, tips for communicating with owners, understanding who the customer is, and using the results of the D.I.S.C. Profile in customer service. Ultimately this session will help you build stronger relationships and increase satisfaction with your clients.

MEET THE INSTRUCTORS

ROBERT L. BOWEN
Bowen Engineering Corporation, Indianapolis, IN
Bob Bowen has been involved in the construction industry for more than 30 years. He founded Bowen Engineering in 1967. Bowen Engineering works throughout the Midwest doing water, wastewater, hazardous waste remediation, and underground construction. They also perform design-build construction for public and private owners. He is a registered professional engineer in California and Indiana, a graduate of Harvard Business School, and has been highly involved with AGC of America.

CHARLES COOK
R.S. Cook & Associates, Southeastern, PA
Charles Cook has served as Chairman of the Philadelphia General Building Contractors Association Education Committee, as Chairman of AGC of America's Supervisory Training Program Subcommittee as well as the Continuing Education Subcommittee. He has presented communication seminars for several corporations. Charles graduated cum laude from Cornell University, received his M.F.A. from Temple University and his Ph.D. from New York University.

ROD FOSTER
RSM McGladrey, Inc., Des Moines, IA
Rod, a managing director of the Des Moines office of RSM McGladrey, provides accounting, assurance, tax, and consulting services for clients primarily in the construction industry. Rod is a certified public accountant for the states of Iowa and Missouri. He is a 1983 graduate of the University of Northern Iowa, Cedar Falls, with a B.A. degree in accounting.

RICHARD MERKHOFER
Wagner-Hohns-Inglis, Inc., Mt. Holly, NJ
Richard Merkhofer is Senior Vice President of Wagner-Hohns-Inglis, Inc., with over 25 years of experience and is especially knowledgeable in Critical Path Method (CPM) Scheduling, delay claims analysis, cost engineering, and construction management. Mr. Merkhofer is responsible for the management and coordination of all CPM scheduling activities at Wagner-Hohns-Inglis, Inc., nationwide, and has been personally responsible for scheduling more than 350 major projects totaling more than $4 billion of construction. A national speaker, Richard makes more than 40 presentations on CPM Scheduling, delay claims analysis, and claims prevention. Seminars include presentations to professional trade organizations, contractors/construction managers, private/public owners, colleges, and construction attorneys.

TED GARRISON
Garrison Associates, Ormand Beach, FL
Ted has been a part of the construction industry for over 25 years. He brings with him practical experience working in framing crews, trim crews, and survey crews as well as time spent in executive positions during the development and construction of almost a billion dollars worth of construction. He was the Director of Construction on the Pennsylvania Convention Center. He brings real life experience to the platform in his 100-plus seminars each year and his consulting work.

DR. SUE DALLAM
Applied Learning Innovations, Iowa City, IA
Sue Dallam, Ph.D., is President of Applied Learning Innovations, a management consulting firm, and Director of the Iowa City Leading Change Microsoft Certification Test Center. She has broad experience in workplace assessment, managerial development, and organizational change. She is co-author of an award winning audio course, "How to Recognize and Reward Employees" published by American Management Association.

DOUG ROOZEBOOM
RSM McGladrey, Inc., Des Moines, IA
Doug is a general services director of the Des Moines office of McGladrey & Pullen, LLP. He provides assurance and consulting services for construction companies including general business advice, guidance on financial accounting and reporting matters, budgeting, and financial statement analysis. Doug is a 1992 graduate of Upper Iowa University, with a B.S. degree in accounting.

ERIC SANDERSON
Fails Management Institute, Denver, CO
Eric Sanderson is a Senior Consultant with FMI, management consultants to the construction industry. Eric works with general contractors and subcontractors to improve business functions through productivity improvement, field leadership training, and high performance teambuilding. Eric earned a bachelor of science degree from Oklahoma State University and a masters of business administration degree from Colorado State University.

ACADEMY FACILITATORS

CHARLES JAHREN, PH.D.
Iowa State University, Ames, IA
Since receiving his Ph.D. from Purdue University in 1987, Professor Chuck Jahren has helped to mold the construction industry's next generation. Currently, Dr. Jahren serves as the Professor In Charge of Iowa State University's Construction Engineering (CnE) program. He has conducted intense research on both construction administration and process improvement for highway and heavy construction, and has been the recipient of six different 12-month grants from the Iowa Department of Transportation. In 2000, Dr. Jahren was awarded the Charles W. Schaffer Award for Excellence in Teaching, Research and Service.

DAVID HARMELINK, PH.D.
Master Builders of Iowa, Des Moines, IA
Dr. David Harmelink is the Director of Education and Professional Development for the Master Builders of Iowa. While [illegible] contract with the Construction Education and Management Department at Purdue University, where he received his [illegible] Degree in Construction Management. He has [illegible] years of experience in the construction industry, [illegible] and estimating. Dave has been employed by [illegible] Construction in New York, [illegible] Construction in Chicago, and [illegible] Construction in Indianapolis. Dr. Harmelink is a member of the [illegible] Honorary Society, the Associated General Contractors [illegible] Construction Educators Association.

STEVE BELL
Leading Change, Inc., Ames, IA
Steve has [illegible] electrical contractor. He [illegible] from [illegible] Steve has been [illegible] contractor relations and [illegible]

APPENDIX D: INDIVIDUAL SURVEYS

Master Builders of Iowa

January 2003 **Cycle of Success - Leadership** page 59

Company:

Now look at what attributes an ideal company needs to not only survive within the construction industry, but also to prosper and grow.

The results will then be combined with the lists of the other groups and ranked in order of importance by everyone:

_____

_____

_____

_____

_____

_____

_____

PM

Master Builders of Iowa

January 2003 **Cycle of Success - Leadership** page 60

Project Manager:

Now list the attributes an ideal project manager needs within a company to successfully lead a project.

The results will then be combined with the lists of the other groups and ranked in order of importance by everyone:

_____

_____

_____

_____

_____

_____

_____

PM

Master Builders of Iowa MBI

January 2003 **Cycle of Success - Leadership** page 61

Superintendent:

Now list the attributes an ideal superintendent needs within a company to successfully lead a project.

The results will then be combined with the lists of the other groups and ranked in order of importance by everyone:

_____

_____

_____

_____

_____

_____

_____

PM

Master Builders of Iowa MBI

Survey - Leader/Manager

From the lists generated about both Leadership and Management skills, list the top five attributes in order of most important #1 of Leader/manager balance required of a project manager and then also by a superintendent. The list can be different:

Leader/Manager attributes for a Project Manger:

1. _____

2. _____

3. _____

4. _____

5. _____

Leader/Manager attributes for a Superintendent:

1. _____

2. _____

3. _____

4. _____

5. _____

PM

Master Builders of Iowa

January 2003 **Cycle of Success - Leadership** page 63

Survey: Motivators

Rank the following motivators in order of most effective (#1) to less effective (#10):

	# Rank (1 through 10)
Tactful discipline	_____
Promotion/growth	_____
Being in on things	_____
Good Pay	_____
Help with personal problems	_____
~~**Job security**~~	_____
Appreciation on work done	_____
Job security	_____
Good working conditions	_____
Interesting work	_____

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